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PUBLIC HEALTH AT THE CROSSROADS*

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IT IS just a quarter of a century since the American Public Health Association last met in the city of Buffalo. On that occasion the position which I have the honor to occupy was held by that great physician, Benjamin Lee of Philadelphia; and in his presidential address he used the following words, which I take the liberty of adopting as my own, with the added emphasis which twenty-five years more of the life of this organization must give to the significance of its presidency and the gratitude which I feel for the honor you have bestowed upon me. Dr. Lee said in 1901, and I echo in 1926:

"One who has devoted the best years of his life to the study and practice of preventive medicine, and who thoroughly believes that next to the ministry of religion, the ministry of health constitutes the noblest calling in which man can engage, may be pardoned if he expresses the sentiment that, having received the verdict of approval from his long valued friends and deeply respected peers, the summit of his ambition has been attained and earth has no richer prize to offer him."

It has been a special privilege to serve as your President during the past year, when so much of importance has occurred in the history of this Association.

ACCOMPLISHMENTS

The work of our standing committees has gone forward with unprecedented success, arrangements having been completed for the dissemination of the procedures of the Committee on Standard Methods of Water Analysis on an international scale through the coöperation of the Health Section of the League of Nations, while the Appraisal Form of the Committee on Administrative Practice was made the subject of the only technical evening address delivered at the Jubilee meeting of our younger sister, the Royal Sanitary Institute, held at London in July.

The first American Health Congress at Atlantic City proved an unqualified success, largely as a result of the labors of our efficient secretary, who was loaned to the Congress as its executive officer.

As a result of a resolution passed at St. Louis, your Executive Board, in closest coöperation with Surgeon-General Cumming, has arrived at what I believe to be a really sound and practical program for the development of the federal health service. For years we have been snatching at the vague shadow of a department of health with a seat in the cabinet, an ideal which is most unlikely of realization under present conditions, and whose value, if realized, is questioned by many of those best competent to judge. Instead, the Parker Bill, introduced at our instance and that of a group of public-spirited citizens in New York, pro-

* Presidential address delivered before the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 11, 1926.

poses to give the President power to transfer such government bureaus dealing with health as he may desire to the U. S. Public Health Service and effects certain long-needed reforms in the internal organization of the service itself. This bill would give all that is vitally needed for the present in the further development of a national health service—of which even to-day we may be justly proud. It would, I believe from assurances received, have won the hearty approval of both branches of Congress, if the Director of the Budget could have been persuaded to give it his approval. During the coming year the American Public Health Association may well make it one of its concerns to see that sufficient pressure is brought to bear to overcome the obstacles that prevented the passage of this bill last spring.

SECTION OF HEALTH OFFICERS

Within our own organization, too, problems of unusual importance have been pressing for solution during the past twelve months. This is an association of professional public health workers, physicians and nurses, laboratory workers and engineers, statisticians and educators, representing voluntary as well as official health organizations. Yet it must be obvious to all that the ultimate success of the great movement to which we are pledged depends first and foremost upon the power and prestige of those who serve as health officials of our various public administrative units. It has been well said that the health officer is the hub and the rest of us the spokes of the wheel of progress; and if the rim sometimes moves faster than the hub, it must be in a definite relationship thereto, whose exact formula I will leave to my engineering colleagues to elucidate. It seems to me most essential that the administrative officials should have within this Association a section or sections, all their own, in which administrative problems may be thrashed out fully and freely; and that their position of primacy in the general government of the Association should be insured by appropriate means. I hope and believe that before this meeting adjourns these ends will have been attained; and, as one non-official health worker, I propose to let no feeling of mistaken *amour-propre* stand in the way of their attainment.

LOCAL BRANCHES

Finally, we have this year given serious consideration to the problem of the organization of local branches of the Association, a problem which, in my judgment, is the most important of all the internal questions now before us for consideration. The American Public Health Association has progressed almost as far as is possible along its present lines as a primarily national or rather international organization. Its future depends on the development in every state of the Union and in every province or other corresponding administrative district of Canada and Cuba and Mexico, of a strong local branch, bound to the parent association by coterminous membership and joint collection of dues. A definite plan for the development of such branch associations has at last been drafted, after the most careful consideration and the fullest consultation with such local affiliated organizations as we now have and with other potential affiliates. The present system of local branches is almost a dead letter; but a really vital plan of regional organization, such as I trust will be adopted at this meeting, will bring the American Public Health Association to that position of power and usefulness which its ideals and purposes have long deserved.

MAJOR PROBLEMS OF THE FUTURE

Passing from these internal administrative problems of our Association, may I now be permitted to turn to the great cause to which our efforts are dedicated—the cause of the promotion of the public health—to note what has been accomplished and to indicate what seem to me the major problems of the future. The

American Public Health Association stands at the crossroads in respect to certain of the most vital problems of organization which it has ever faced; but in regard to the policies and programs of our profession itself we have decisions to make which are of far more pressing importance for the welfare of the people of this continent.

The results achieved during the past fifty years by a public health campaign based on the threefold program, of environmental sanitation, control of communicable disease by bacteriological and serological methods and education in personal hygiene, constitute without exaggeration one of the most startling and revolutionary events in the whole history of the human race. The death rate from all causes in New York City (according to Dr. D. B. Armstrong) was 31 per 1,000 in 1824, 41 per 1,000 in 1851, and still 29 per 1,000 in 1875. Then began the fall, from 29 in 1875, to 12 in 1925, a reduction of three-fifths in a period of fifty years.

As Professor Willcox has recently pointed out, "the statement that in 1879–80 the crude death rate or average number of persons dying annually in each 1,000 of the population of New York-Brooklyn was 22, while in 1919–20 it was 13, does not convey much meaning to the average citizen. But when the same change is expressed in the statement that in 1879–80 the average length of human life in New York-Brooklyn was 36 years, but in the present New York City in 1919–20 it was 53 years, showing an increase of 17 years, or 47 per cent, within that 40-year period, then the statement gains greatly in significance and carrying power." That in two generations the average length of human life should have been increased by almost one-half must arouse in us a sense of reverent wonder at what God hath wrought for mankind through the applications of modern science.

Our progress in the control of preventable disease has, however, been by no means uniform. To chart wisely our future line of attack it is important to see just where we have attained or nearly attained our goal and where we have fallen short of such attainment; and for this purpose I propose to use some figures kindly furnished me by my friend Dr. Haven Emerson in the form of a differential analysis of mortality by causes in New York City for the past fifty years. These data cover the period 1873–75 for Manhattan and the Bronx and the period 1923–24 for Greater New York, and although the areas are not the same they will serve well enough to indicate the general trend of events. I have prepared the table presented herewith on the basis of these figures.

MORTALITY FROM CERTAIN SPECIFIED CAUSES AND FROM ALL CAUSES PER 100,000 POPULATION

	Manhattan and Bronx 1873–75	Greater New York 1923–25	Per cent change
Scarlet fever	80	1	—99
Diphtheria and croup	235	11	—95
Diarrhea under 5 years	335	22	—93
Diseases of the nervous system	252	39	—85
Pulmonary tuberculosis	404	84	—79
All other causes not listed	874	316	—64
Acute respiratory diseases	352	164	—53
All causes	*2,890*	*1,220*	*—42*
Bright's disease and nephritis	100	69	—31
Violence	120	85	—27
Cancer	41	113	+176
Heart disease	89	255	+187
Diseases of the arteries	8	61	+650

Time does not permit a discussion of the extent to which the changes indicated are due to improvements in diagnosis and alteration in the age distribution and racial composition of the population. All these factors are of real importance but they do not affect the primary fact that the major problems of public health have fundamentally changed in fifty years. In 1875 the outstanding causes of death were pulmonary tuberculosis, acute respiratory diseases, infant diarrhea and diphtheria and croup in the order named. During the half century that has passed the communicable and environmental diseases have been so substantially reduced that the problems of the future are heart disease, the acute respiratory diseases and cancer. We face a new situation and we

must adopt new methods if we are to meet it with any measure of success.

ORGANIC HEART DISEASE

The problem of the diseases of the arterio-renal complex is of course no simple one. In the early years organic heart disease is largely a result of acute communicable diseases and focal infections, and in middle life of venereal disease; while in old age the factors of true senile degeneration play a major rôle. There is no sharp division, however, between these factors, and a man may no doubt die of heart disease at 70 years of age because of organic lesions due to infection from a neglected tooth at 12. The control of streptococcus and pneumococcus infections of every sort will therefore play a real part in the reduction of organic heart disease. It is in the main, however, to personal hygiene and preventive medical care that we must look for the immediate control of this major factor in the death rate. Food, fresh air, exercise and rest, the clearance of the bowels and the avoidance of drugs and industrial poisons—it is these elements in daily healthy living which must form our first direct line of defense against the onset of degenerative disease. Above all, however, it is to the early detection by the physician of incipient organic lesions that we must look for the application of the particular rules of personal hygiene which the specific individual needs to observe if the results of an initial weakness are to be avoided or postponed. We are here brought face to face with the central problem in future preventive medicine, the application of medical knowledge to the individual patient at a time when that knowledge can really exert a maximum effect.

CANCER

A consideration of the third major factor in the death rate, cancer, brings us of course to the same practical conclusion. For the present we must rely upon the surgeon for the control of cancer; and, although the extent of non-recognizable or non-operable cancer is now known to be greater than was thought ten years ago, there is still ample margin for the saving of life by early surgical treatment. If such savings are to be made, however, we are again faced by the urgent and imperative need for social machinery which will facilitate prompt diagnosis and prompt treatment, machinery which will bring to bear the resources of medical science before the time has passed for their effective use.

MENTAL HYGIENE

It is impossible to consider, even in the briefest summary, the future program of the public health movement without at least some reference to the vast and fertile fields of mental hygiene. To-day, the attention devoted to this problem by municipal health departments is so slight that it has not even been included in our Appraisal Form for city health work; but in the not-distant future I am inclined to believe that the care of mental health will occupy a share of our energies perhaps as large as that devoted to the whole range of disorders affecting other organs of the body. If we consider only the graver forms of mental diseases and defects I am not sure that the amount of disablement referable to the central nervous system is much less than that due to defects in other organ-systems; but it is a consideration of the minor mental maladjustments which handicap all of us in the affairs of our daily life which reveals the true magnitude of this problem. The gravest ills from which this world of ours suffers, industrial disputes and international misunderstandings, are all in their essence problems of mental hygiene and will be solved less by economic or political panaceas than by a fuller grasp of the principles of applied psychology. We must have then, not only hospitals for the institutional care of advanced cases of mental disease and defect, but psychopathic wards for first aid to the injured, mental hygiene clinics, psychiatric social

work and education in the principles of mental health, both for children and adults, on a scale as yet undreamed of.

EDUCATION OF THE INDIVIDUAL

In this great field, as in the control of the degenerative diseases, the fundamental problem involved is essentially the same. In both instances education of the individual in the principles of health living is the desideratum. It must, however, be no vague preaching of abstract principles but a definite and specific application of such principles to a given individual. Such application must of course rest on a sound medical diagnosis. In every one of those fields of public health which promise a maximum of return during the half-century that lies before us, the preventive application of the resources of medical science to the individual case is the crux upon which success or failure must depend.

PUBLIC HEALTH AT THE CROSSROADS

It is in connection with this fundamental problem that the public health movement of the present day stands at the crossroads. Our achievements between 1876 and 1901 were almost wholly based on the organized application of the sciences of sanitary engineering and bacteriology. During the first quarter of the present century the doctor and the nurse have come into the picture, and so far as nursing is concerned, the principle of social organization has been generally accepted so that we may look forward with some confidence to the day when the bulk of nursing care will be rendered either in institutions or by organized visiting nurse associations. So far as the application of medical service is concerned we have recognized with some fullness the responsibility for medical care of communicable diseases and for the hygiene of the infant and the school child. We must soon come to a decision as to the point at which social responsibility for the care of individual health shall cease, if such a point exists.

PREVENTION AND CURE

In the past this difficulty has been commonly met by the plausible attempt to draw a line between prevention and cure, by assuming that prevention is the task of the state and that treatment should be left to the private physician. This is a good phrase and as a people we Americans love to govern our affairs by phrases.

The very interesting program now being built up by the new government department of social hygiene in France is entirely based on such a sharp distinction between diagnosis and prevention on the one hand and medical treatment on the other. Yet such a distinction has often no very clear meaning when we analyze it and apply it to the individual case.

The drainage of a mosquito-breeding marshland is prevention, pure prevention if you will. But when a boy is weighed at school and found to be underweight, when inquiry reveals the fact that he is coming to school without breakfast and when improvement of dietary habits brings about a return to normal development, what shall we call the process? Is it not cure of the state of malnutrition which already existed and prevention of the further physical deterioration which would otherwise ensue? A patient with incipient tuberculosis enters a sanatorium and the disease is arrested, or a patient with early cancer submits to a successful operation. Is not the principle in all these instances the same, cure so far as possible of the damage already done, and prevention of its extension in the future? Even the surgeon who treats an accidental wound is practicing preventive medicine, since the major aim which he accomplishes is to avert the septic infection which otherwise would follow.

When medical treatment consisted chiefly in the administration of drugs it was perhaps possible to draw a line, in practice if not in theory, between prevention and cure. Nowadays, however, the hygienic advisor finds it increasingly difficult to make any sharp distinction between

the normal and the abnormal and the medical practitioner places his chief reliance upon the hygienic regimen of "preventive" medicine. The attempt to fix the boundaries of the public health program by establishing a distinction between prevention and cure must then in practice lead only to confusion and incertitude.

THE HEALTH OFFICER'S RESPONSIBILITY

We may, if you like, say that the health officer should concern himself only with communicable disease. That is a logical position, though a narrow one. Or we may combine this etiological criterion with another based on age and say that the field of the health department includes all the health problems of the infant and the child plus the communicable diseases of the adult. This is a second clear and defensible position and one which approximates present-day practice. Or we may take a still wider view and say that the health program must envisage the whole field of the prevention of disease and the promotion of physical and mental health and efficiency.

A reading of the constitutions and charters under which our state and city health departments operate suggests that the latter conception of their functions is also an admissible one, for these grants of power and responsibility contain no limitations as to the age of the individual or the etiology of the disease to be controlled. If, however, we accept for the moment such a comprehensive conception of the duty of the health officer, we must obviously face the whole issue of the place in the health program of the practitioner of medicine, since it is only through the effective application of the medical art that the constitutional diseases can be brought under control. In considering this vital problem, it will perhaps help us, if we recall how the relations of other professions to the public health program have been dealt with in the past.

It was quite obvious forty years ago that the individual sanitary engineer could not apply his resources effectively to the prevention of disease; and the same thing became clear thirty years ago as to the individual bacteriologist, and twenty years ago as to the individual public health nurse. Sanitary engineering and bacteriology and nursing have therefore been brought within the purview of the health program in such a way that their resources are available to every individual in any well-organized community. They have not been "socialized" in any arbitrary sense. There are still, and there always will be, sanitary engineers and bacteriologists and nurses, functioning in their private capacity; but we no longer rely chiefly on private expert service for the protection of water supplies, the laboratory diagnosis of disease or even for the nursing care of the sick in the home.

The major problem of health conservation, to-day, is the application on a scale of similar effectiveness of the resources of the science of medicine. It is on such an application that the control of heart disease and cancer depends and the issue is of such moment that in some fashion or other the desired end must surely be attained. Can it be reached in the normal course of events by the initiative of individual practicing physicians? Or must society through its official and voluntary agencies again take a hand and provide social machinery for facilitating its attainment?

LACK OR INADEQUACY OF MEDICAL CARE

I take it, from the criticisms one may hear on every hand, that the present organization of medical service in the United States has at least not yet reached a wholly ideal status. First of all, we are told that from the standpoint of the profession itself the conduct of medical practice on an extreme individualistic basis becomes increasingly unsatisfactory, since the growing complexity of medical science creates a corresponding necessity for laboratory tests and for consultation services, only to be met by some form of medical organization.

Second, from state after state comes the complaint of grave lack of medical service of any kind in rural districts and of efforts to meet this need by community grants to physicians who will consent to practice in such regions, an expedient duplicating a common experience of the New England settlements in colonial days. I doubt, however, whether financial reward is the chief determining factor in this problem, since there remains always the fact that a well-trained young doctor, unwilling to practice anything but good medicine, knows that he cannot practice good medicine in an isolated rural district without laboratory and hospital facilities and available consultation service. Nor can I accept the solution, propounded a year or so ago, of lowering the standards of medical education so as to produce physicians willing to practice in the country under existing conditions. I should prefer to keep our good doctors and through adequate organization enable them to do good work.

Third, we are told that the cost of adequate medical service has so risen that except for the very rich and the very poor such medical care is not actually available even in great cities and even in serious illness; and the surveys made by the Metropolitan Life Insurance Company make it clear that a large proportion of such illnesses do actually fail for one reason or another to receive the services of a physician.

Fourth, and of greatest importance in connection with the present discussion, is the problem of making medical service really preventive and not merely an attempted alleviation after the event. If disease is to be effectively controlled the doctor must generally be called in before the symptoms have become acute, and unless the characteristics of human nature shall be radically changed the average man will be slow to call in a physician for true preventive service if immediate and direct payment for the service rendered is thereby involved. It is this fundamental economic and psychological difficulty which has convinced so many that there must be some equally fundamental change in the system of compensation for medical service, some approximation to the ideal of annual payment or of payment through an insurance fund or through the tax levy, if medicine is to become truly preventive in its actual operation.

ORGANIZED MEDICAL SERVICE

Varied and diverse are the movements going on all about us which in greater or less measure are designed to meet one or more of the needs outlined above. The campaign for annual health examinations, first sponsored by the Life Extension Institute, and now formally adopted as a program by the American Medical Association, is one example, though it scarcely touches either of the underlying needs—for organized effective modern medical service or for a financial relationship which will insure general distribution of such service. Group medicine solves the first of the four difficulties outlined above, and, as exemplified in such institutions as the Mayo Clinic, constitutes a very real contribution toward the organization of the profession. The development of hospital and dispensary services under public or semi-public auspices, as in the magnificent municipal hospital of the city of Buffalo, is one of the most potent forces in the progress of scientific medicine, as it was in Arabia six hundred years ago.

Industrial medicine has vast possibilities of usefulness and in this country has already perhaps accomplished more than any of the other tendencies which have yet been noted in bringing medical service to the individual at a stage when the most effective measure of prevention can be assured.

In Germany and England, National Health Insurance has been adopted as an official program and whatever doubts may exist as to the wisdom of combining cash benefit relief for disability due to illness with the medical care of such illness, a recent visit to England has convinced me that, thanks to the increasing supervision

of the Ministry of Health, the plan is working better in that country than its unsympathetic critics (of whom I have been one) would have believed possible five years ago. The same movement is spreading with astonishing rapidity throughout Central Europe, though in certain countries, such as Jugo-Slavia against the violent opposition of the medical profession. In Berlin a strike of physicians against the terms of the panel program has led to still more radical developments in the shape of a complete system of public clinics or "ambulatoria" staffed by salaried physicians paid from the insurance funds.

Finally, there is a movement which in the United States seems to many of us to be the most important and most promising of all those here reviewed. I will call it, if I may, the Health Center Movement, meaning by that term the development with official funds, or with those contributed through voluntary agencies, of free public services for the examination of well persons or of persons who suspect the presence of disease, for their hygienic instruction and for the administration of preventive medical treatment or reference to private physicians or to institutions where such treatment can be secured. Prenatal clinics, infant welfare stations, school medical services, tuberculosis clinics, venereal disease clinics, mental hygiene clinics, heart clinics, cancer clinics are all undertakings of this class. They are rapidly on the increase and it is in regard to your attitude as health workers toward developments of this kind that a clear and convinced policy is of most immediate moment.

CRITICISMS AND CATCHWORDS

I am fully conscious of the criticisms which have been, and will be, made in regard to most and perhaps all of the projects for organizing medical service which have been outlined above. Some of these criticisms are sound and significant, others merely superficial and frivolous. The habit of condemning any attempt at intelligent community action by labelling it as "socialistic" and "bureaucratic" is for example unworthy of serious-minded men. Some things are better done by the individual, some better by the state; and catchwords will not help us to determine to which class a given activity belongs. I am often reminded, when I hear such alleged arguments, of a paragraph in an address by Dr. Royal Meeker, then United States Commissioner of Labor Statistics, who said:

> Many earnest people are afraid that social insurance will take away from the working man his independence, initiative, and self-reliance, which are so celebrated in song and story, and transform him into a mere spoon-fed mollycoddle. This would be a cruel calamity. But if the worst comes to the worst, I, for my part, would rather see a race of sturdy, contented, healthful mollycoddles, carefully fed, medically examined, physically fit, nursed in illness and cared for in old age and at death as a matter of course in recognition of services rendered or for injuries suffered in the performance of labor, than to see the most ferociously independent and self-reliant superrace of tubercular, rheumatic and malarial cripples, tottering unsocialistically along the socialized highways, reclining self-reliantly upon the communal benches of the public parks and staring belligerently at the communal trees, flowers and shrubbery, enjoying defiantly the social light of the great unsocialized sun, drinking individualistically the socialized water bubbling from the public fountain, in adversity even eating privately the communistic bread provided in the community almshouses, and, at last going expensively to rest, independently and self-reliantly in a socialized or mutualized graveyard full of little individualistic slabs erected to the memory of the independent and self-reliant dead.

Nor do I believe that a more organized system of medical service will operate unfavorably upon the average income of the medical profession. It has not so operated in England and the profession in that country is now well satisfied with this particular aspect of the health insurance act.

On the other hand there are very real and very serious dangers in almost all plans for the better organization of medical service, which must be considered with the greatest care if we are really to attain the ideal results at which we aim. Even group practice by the medical profession itself is not without possibilities

of commercialism. Industrial medicine may be twisted from its legitimate purpose and converted into a mere instrument for fighting compensation claims. The sale of salaried medical service to the public by non-medical profit-making organizations is in my judgment generally unsound. The administration of insurance plans and of health centers must be safeguarded with meticulous care if we are to avoid inadequate compensation for physicians, lowered standards of service, loss of independent initiative and the deadly blight of institutionalism. It will take the maximum of broad-minded statesmanship on the part of both health officials and the medical profession, if the good results of organized medicine are to be obtained without their possible attendant evils.

TENDENCY TOWARD ORGANIZATION

Whether we like it or not, however, the tendency of the times makes it clear that some form, or forms, of organized community medical service are coming, as surely as the sun will rise to-morrow. While we hesitate and consider, the thing is happening all about us. If we place our heads in the sand like the ostrich, or if we emulate King Canute and order back the tides the inevitable will still occur; but its form and its direction we can govern if we will. It is only through the leadership of the health officer as an agent of the public, solemnly charged with the duty of preventing disease and promoting health in every form, and through the thoughtful and broad-minded coöperation of the medical profession, that the legitimate demand for an organized preventive medical service can be wisely met.

SOLUTION ONLY THROUGH COÖPERATION

To avoid possible misunderstanding let me say here, with the utmost emphasis, that I am not arguing for group medicine, for state medicine, for health insurance or for any other panacea. The problem is one of the greatest delicacy and I have no easy answer to propound. The wise course must be found by the coöperative thinking and the coöperative experimentation of health officers and physicians during the next twenty years. It appears that at the moment the main current is setting toward an expansion of preventive medical service under the auspices of official health agencies. But the stream is not all in one direction. While in cities on the Atlantic seaboard infant welfare stations are generally open to all, without consideration of economic status, we find in Minneapolis and other cities of the Middle West that pediatricians in private practice have developed their preventive services so far that well babies are not received at the public infant welfare stations unless their parents are unable to employ a physician. In my own city of New Haven Dr. Rice, having as Health Officer conducted an admirably successful campaign for diphtheria immunization on a city-wide scale, has definitely appealed to the medical profession to carry on the work and to see to it that the ground won shall be maintained by the immunization of future generations of children as a routine measure of private practice.

In England, the plan proposed by Lord Dawson's Consultative Council on Medical and Allied Service suggests an exceedingly interesting alternative to the development of so-called state medicine. To quote from a recent editorial summary in the *London Times:*

> It was urged in a preamble to this scheme that preventive and curative medicine could not be separated on any sound principle, and that in any scheme of medical services they must be brought together in close coördination. It was added: "They must likewise be both brought within the sphere of the general practitioner whose duties should embrace the work of communal as well as individual medicine." To this end it was suggested that primary health centers should be set up in each district. They should be institutions equipped for services of curative and preventive medicine and conducted by the local general practitioners in conjunction with an efficient nursing staff with the aid of visiting consultants and specialists. A group of primary health centers should in turn be based on a secondary health center. Patients entering the secondary center would pass from the hands of their own doctors to those of the staff of the secondary center. And the secondary center, which should include accommodation for

the communal services, should be brought into relationship with a teaching hospital having a medical school.

The basis of this scheme is the voluntary system. Patients retain all their rights of free choice of doctor; doctors retain all their freedom of action. The State provides the fabric; it does not interfere with the work or liberty of the personnel. There is complete correlation between the public health service and the private health service, but there is no suggestion of dominance by the former over the latter. The medical officer of each area is to be assisted and advised by a council of practitioners elected at intervals by a postal vote of all the doctors practicing in the area. Finally the great teaching hospital is made the foundation of the whole edifice.

SUMMARY

I am not arguing for this or any other specific plan for the better organization of medical service. The administrative difficulties in the Dawson project, as I understand it, seem to me well nigh insuperable. The lesson which I do wish to emphasize is a very simple and a very general one. It can be stated in half a dozen sentences as follows:

1. Future progress in the reduction of mortality and in the promotion of health and efficiency depends chiefly upon the application of medical science to the early diagnosis and preventive treatment of disease, particularly organic diseases of adult life and mental diseases and maladjustments at all ages.

2. The purely individualistic practice of medicine as it has existed in the past must be increasingly supplemented by some form or forms of organized medicine which will offer to the individual modern scientific medical care including laboratory and specialized consultation service on an economic basis which will facilitate its application to the prevention of incipient disease—probably on some basis which involves payment of the physician through a common fund for the supervision of the health of an individual rather than for the treatment of a specific ailment.

3. The health officer as an official responsible to the community for the promotion of the public health in all its possible aspects should consider it his primary responsibility to work out in coöperation with the medical profession a wise solution of this problem—a solution which will preserve and maintain all that is best in the noble traditions of the healing art.

4. In the last analysis, it will be the duty of the health officer of the future to see that the people under his charge, in city or country, in palace or tenement, have the opportunity of receiving such service as that outlined above and on terms which make it economically and psychologically easy of attainment; and, himself, to furnish such service if and when, it cannot be provided in other ways.

If I am correct in believing that these grave and serious issues must inevitably confront the health officer of the future, it seems clear that those who are to meet such issues should lose no time in preparing themselves to do so wisely. No organization is so well fitted as the American Public Health Association to attack this problem from the broad aspect of community well-being; and no problem in the whole field of public health so urgently calls for solution. I would urge as my essential message to you that the American Public Health Association should direct its Committee on Administrative Practice to undertake a systematic study of the underlying questions here involved and to request the American Medical Association through appropriate designated representatives to coöperate in this difficult but essential task.

Plato tells us that "The man whose natural gifts promise to make him a perfect guardian of the state will be philosophical, high-spirited, swift-footed and strong." If you are to solve the problems I have here outlined you must indeed prove yourselves wise and courageous, prompt and firm; but the cause is one that may well inspire you to the achievement of such virtues.

You may recall the passage in Harvey Cushing's *Life of Sir William Osler*, where that great physician, sitting in meditation in a mighty cathedral, yields to the sweep of an emotion:

> . . . obliterating for the moment the thousand heraldries and twilight saints and dim emblazonings, a strong sense of reverence for the minds which had executed such things of beauty. What manner of men were they who could, in those (to us) dark days, build such transcend-

ent monuments? What was the secret of their art? By what spirit were they moved? Absorbed in thought, I did not hear the beginning of the music, and then as a response to my reverie and arousing me from it, rang out the clear voice of the boy leading the antiphon; "that thy power, thy glory and mightiness of thy kingdom might be known unto men." Here was the answer. Moving in a world not realized, these men sought, however feebly, to express in glorious structures their conception of the beauty of holiness, and these works, our wonder, are but the outward and visible signs of the ideals which animated them. Practically to us in very different days life offers the same problems, but the conditions have changed, and, as happened before in the world's history, great material prosperity has weakened the influence of ideals, and blurred the eternal difference between means and end. Still, the ideal State, the ideal Life, the ideal Church—what they are and how best to realize them. Such dreams continue to haunt the minds of men, and who can doubt that their contemplation immensely fosters the upward progress of our race?

What we are doing here in our several ways is to build up on earth the city of God. Like the forgotten craftsmen who labored on the lotos columns of Karnak or carved the glorious doorways of Chartres we contribute in our humble fashion toward a mighty and a lasting end. The means are prosaic—report cards and spot maps, culture tubes and vaccines, clinics and nursing visits—and the results may appear only in a smaller decimal behind the death rate per thousand of the population. Yet the real fact behind it all is the saving of men, women and children from suffering and from death; and the building into the social machinery of mankind of a technic which shall yield the same beneficent results throughout the coming years.

LEGISLATION RELATING TO FRUIT AND VEGETABLE PRESERVATION*

THE SCOPE of the work logically lying within the sphere of this Committee is very wide. It is an almost virgin field. Innumerable problems in it relating to the public health remain unanswered and unstudied. Progress is slow, yet our knowledge is being augmented by research and experience at a greater rate than ever before.

It was felt that any contribution, however small, to our present store of knowledge of legislation pertaining to food preservation, would be of value and general interest to all public health workers.

Data were collected, therefore, from the health and agricultural departments of the states and territories of the United States as well as from the U. S. Public Health Service and U. S. Department of Agriculture, Bureaus of Chemistry, Plant Industry and Home Economics. The information from the states was checked up and in some cases supplemented by information furnished by the federal bureaus or by reading the laws of the states themselves. Nearly complete data were obtained from 44 states, the territories of Hawaii and Porto Rico and the District of Columbia.

DIGEST OF DATA

Forty-seven states, Hawaii, Porto Rico and the District of Columbia have state or territorial food laws essentially similar to the United States Food and Drugs Act of 1906 with its later amendments.

One state (New Mexico) reported that it had no food laws.

In 23 states the enforcement of all food laws was carried out by the departments of agriculture.

In 20 states the enforcement was supervised by the departments of health.

In 3 states neither health nor agriculture departments, but specially elected or appointed food commissioners (Oregon, Wisconsin and

* Report of the Committee on Fruits, Vegetables and Their Products, presented to the Food and Drugs Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 12, 1926.

Missouri), have this in charge. Two states made no report.

Excluding sanitary laws, 36 out of 46 states and territories investigated have no important amendments or additions to the Federal Food and Drugs Act.

Ten states have laws showing changes which may have public health bearing. These for the most part relate to cold storage, fruit and vegetable grading laws and certain phases of food adulteration or misbranding.

Aside from the Food and Drugs Act and sanitary laws, 22 states out of 46 investigated possess regulations controlling some phase of fruit or vegetable preservation.

These 22 refer to the following phases of fruit and vegetable preservation:

Class of Legislation	States
Harvesting	2
Transportation	7
Handling	14
Storage	18
Preservation by canning or pasteurizing	18
Preservation by cold storage	17
Preservation by fermentation	5
Preservation by use of sugar, salt, or other chemicals	9

The states particularly active in regulating food factories are California, Wisconsin, Minnesota, Maine, Ohio, and possibly Colorado, Utah and Montana.

The information obtained relative to specific regulations for cold storage, canning, transportation, etc., was in many cases very general but it is believed that on the whole it is fairly reliable. The laws were personally looked up in order to check or supplement the records of 22 states.

There were 41 states or territories possessing so-called sanitary laws out of a total of 46 investigated. By means of these laws it is possible for the states to enforce cleanliness in food manufacturing plants. States possessing no sanitary laws are Arkansas, Arizona, New Mexico, Washington, and West Virginia.

In 21 states the sanitary laws were enforced by health departments while in 15 enforcement was by the state agricultural departments, 4 by both health and agriculture and one by a special food commissioner.

Replies were obtained from 45 states in answer to the question of cannery inspection.

Thirty-seven states make at least an annual inspection of food manufacturing plants such as canneries.

Eight states make no inspections. In Maine full-time cannery inspection is optional by the packer who must pay its cost. A similar though compulsory inspection is in force in Minnesota and California.

As to the frequency of cannery inspection, the following data were collected: 3 states inspect daily (California, Maine, and Minnesota); 6 states inspect frequently, that is oftener than once a month (Wisconsin, Oregon, Utah, Michigan, Ohio, and Hawaii); 17 states inspect occasionally, at least twice a year; and 11 inspect once a year or on complaint only.

Fourteen states of the 45 investigated require food handlers or cannery workers to undergo a periodic medical examination, while 3 additional ones require such an examination in the case of complaint or emergency.

Of these 17 states or territories only 2, Porto Rico and Hawaii, fully enforce them, 8 others only in case of emergency or complaint, while 7 make little or no effort to enforce them. Limited personnel and funds was given as the main reason for non-enforcement.

Only 9 states or territories from a total of 45 now license food canneries. These are Iowa, Wisconsin, Louisiana, Montana, Ohio, Porto Rico, California, and Maine. Legislation is now pending in Colorado.

REPLIES TO QUESTIONNAIRE

In answer to the question "Do you think the licensing of canneries or food manufacturing plants is a desirable procedure?" 41 states submitted replies; 27 thought it was desirable, 11 did not, while 4 were doubtful. A number of comments were made, such as, "If conditions cannot be controlled without licenses they cannot be controlled with them," and "It would be desirable if the plants were frequently inspected." Several states claimed it would "simplify the enforcement of sanitary and other laws."

Thirty-eight states answered the question, "Do you think it desirable that the use of certain minimal processing or cooking temperatures for vegetable canning be a prerequisite to the granting of a state cannery license?" Thirty thought it was desirable; 4 considered it undesirable; while 4 were doubtful. Several answers commented that such requirements were difficult of enforcement, others claimed it was entirely practical.

Similarly, in regard to the question of compulsory code marks on all canned fruits, vegetables, and their products, a total of 41 replies were received. Thirty-seven states stated that code marks should be compulsory, 2 replied negatively, while 2 were doubtful. One addi-

tional state considered coding desirable but stated it should not be made compulsory. Thus we have a very overwhelming majority in favor of codes. Four states specified that plain English was better than code, especially the date on which the food was packed. Two states claimed daily production records were likewise very desirable.

Thirty-nine replies were received in answer to the question, "Is it feasible to compel canneries to install temperature recording devices, such as are used in milk pasteurizing plants, and file the records thus made?" There were 28 affirmative answers (8 qualified), 3 negative (1 qualified), and 8 doubtful ones. Three comments were to the effect that it was too difficult of enforcement; 2 thought it was practical only if frequent cannery inspections could be made. Two states stated it impractical except for large factories.

REPORTABLE FOOD POISONING DISEASES

It was attempted to collect information from the state departments of health on what diseases of the food poisoning group were reportable. Due to obsolete classifications in some states several general terms or synonyms are placed in the list which includes food poisoning: "ptomaine" poisoning, botulism, enteritidis, bacillary dysentery, and paratyphoid B. All 48 states are included.

Food poisoning is a reportable disease in 9 states, *i.e.*, Georgia, Kansas, Maryland, Montana, New Mexico, Washington, Wyoming, and West Virginia. Any poisoning is reportable in Oklahoma.

"Ptomaine" poisoning is also listed as reportable in 5 states.

Botulism is now a reportable disease in 13 states, *i.e.*, Colorado, Connecticut, Arizona, Idaho, Kansas, Maryland, New York, Minnesota, Oregon, Washington, California, West Virginia, and Wyoming. It is interesting to observe that those states having had most outbreaks of botulism are those where the disease has been made a reportable one. Needless to say it should be made reportable in every state and territory.

Paratyphoid fever (undifferentiated into types except in Washington) is reportable in 37 states and territories.

Bacillary dysentery is reportable in 33 states but in some it is not differentiated from the amoebic type.

Enteritidis is reportable in 42 states.

Statistics on all food poisoning type of diseases are, in general, very incomplete and probably unreliable. The information in possession of the Surgeon General, U. S. Public Health Service, is very fragmentary.

PREVALENCE OF FOOD POISONING

It was attempted to collect statistics upon the prevalence of these diseases. The data are presented, not with the idea that they are accurate or complete but on the basis that they are the best that could be obtained. Even the U. S. Public Health Service has no data on this subject.

In 1925 there were reported in the United States 42 cases of enteritidis, 1,236 cases of paratyphoid B besides 1,232 cases of undifferentiated paratyphoid, and 11,517 cases of bacillary dysentery. That these reports are incomplete is probable. Efforts should be made in every state to clear up the haze surrounding the reporting of these food poisoning diseases.

The following data compiled largely by Geiger for the *Journal of the American Medical Association* (1926), on botulism may prove of interest:

HUMAN BOTULISM IN THE UNITED STATES SINCE 1920

Year	No. of Outbreaks	No. of Cases	Deaths
1920	14	48	33
1921	14	56	22
1922	21	55	46
1923	12	21	16
1924	8	43	29
1925	8	21	15

Some of the late cases have been distributed as follows: Colorado 5, Connecticut 1, New York 1, Idaho 1, Minnesota 3, Wyoming 2, Ohio 3, California 2, and Kansas 1.

The distribution seems to be very wide, and as usual home canned vegetables caused most of the outbreaks. The general presence of *Cl. botulinum* in soil over the greater part of the United States hangs as a veritable sword of Damocles over every careless or ignorant home and commercial canner in the country. A number of federal, state and private laboratories are working on food poisoning as related to the food preservation industries and it is hoped that before long, enough experimental work coupled with practical experience will have been accumulated to enable state health departments, as well as canners themselves, to carry out the necessary precautions to guard the public health. Some states have already paved the way.

CARL R. FELLERS, *Chairman*
I. L. MILLER
C. D. GEIDEL
A. M. G. SOULE
W. E. WARD

DEATH RATES OF MALE WHITE PHYSICIANS IN THE UNITED STATES, BY AGE AND CAUSE*

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IN A PREVIOUS STUDY[1] dealing with the causes and rates of mortality among the wives and children of physicians it was found that decidedly lower death rates prevailed in these two groups than was the case for mothers and infants in the general population, but that the deaths of mothers and infants in physicians' families, from preventable causes, were still numerous as in other groups of the community.

Since the mortality experience of occupied groups in this country has been found pretty generally to be unreliable because of at least the two factors of lack of exact enumeration of employed persons by age and character of employment, and of incompleteness and inaccuracy in the designation of occupation on the death certificates, we have no good basis for judging of the relative safety of life among persons employed in the so-called professional groups.

The annual editorial statement in the first or second issue of the *Journal of the American Medical Association* in January of each year, which summarizes the record of deaths among physicians, does not give the death rates of other comparable groups of occupied persons as a basis of comparison with the mortality of physicians.

According to the *Journal's* records, the average mortality rate among physicians, at all ages and from all causes, per thousand, for the years 1902 to 1925, was 17.08, and as calculated by them from the incomplete returns at the end of the calendar year the rate for each of those years was as follows:

1902...14.74	1910...16.96	1918...16.88
1903...13.73	1911...15.32	1919...13.55
1904...17.14	1912...14.13	1920...14.81
1905...16.36	1913...14.64	1921...14.65
1906...17.20	1914...14.41	1922...17.73
1907...16.01	1915...15.71	1923...17.95
1908...17.39	1916...14.08	1924...17.37
1909...16.26	1917...14.37	1925...17.22

The numbers of deaths from several important causes and the number of decedents in eight age periods are usually reported in this annual statement, but the deaths by age and cause are not correlated.

These valuable but brief summary statements do not give information which makes possible anything more exact than the crude death rate for physicians from all causes for both sexes and for white and colored physicians combined.

The deaths are given by age groups which do not correspond with the decennial periods used by the Census Bureau in reporting deaths for the general population or for particular occupational groups, and there is nowhere available a report of the distribution of physicians living in the United States by comparable age classifications, from which specific death rates by cause or age group can be calculated.

It seemed desirable to supplement the simple and direct, but unrelated, facts of the annual statement issued by the management of the American Medical Association by a report upon the death rates of male white physicians by age and cause, and relate these so far as possible with the death rates from the same causes

* Read before the Vital Statistics Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 14, 1926.

TABLE I

PERCENTAGE OF PHYSICIANS IN THE SEVERAL AGE GROUPS—1890, 1900, 1910, 1920 AND 1925

	Years	15–24 yrs.	25–34 yrs.	35–44 yrs.	45–54 yrs.	55–64 yrs.	65 & Over	Unknown
All male physicians	(1890).....	5.1	26.7	25.6	19.7	13.4	9.1	.4
	(1900)*.....	5.0	29.8	26.2	18.7	11.8	8.2	.3
	(1910).....					39.6		
Male white	(1920)**.....	1.5		48.7		41.7	8.1	
	(1925)***.....		15.1	23.5	30.9	18.4	12.1	

* Statistics regarding the Medical Profession Social Insurance Series VII, A.M.A., 1916.
** Census, Volume IV, 1920, Occupations. *** Present Study of A.M.A. records.

in comparable age groups of other occupied males in the United States.

The following study is based primarily upon the data collected in the office of the American Medical Association and we are indebted to the management of the Association for many courtesies in this connection. Apart from a curiosity as to the success of physicians in so conducting their own lives as to benefit by the knowledge of preventive medicine, which they may be presumed to have to a greater extent than the laity in general or than other professional groups of similar age and sex distributions, it was our hope to make available for at least one fairly stable and well organized body of adults the facts of mortality which we so urgently need for a great variety of occupations, but which escape us, either by reason of the lack of a basis of calculation from a known number of employed persons in the various occupations, or because of the indefiniteness of the occupation as given commonly on death certificates.

The number of male white physicians of the United States in 1925 and for certain earlier years, distributed by age groups, as well as the numbers of all male physicians in this country in 1890, 1900, 1910 and 1920 are given in Table I.

Concentrating our attention upon the per cent of all male physicians over 45 years of age, we find an increase in thirty-five years in this group as follows:

1890.....42.2 per cent
1900.....38.6 per cent
1910.....39.6 per cent
1920.....49.8 per cent
1925.....61.4 per cent

A further expression of the distribution of physicians by age groups in comparison with males in the other professions, and with all occupied males except physicians and the other professional groups is shown in Table II.

TABLE II

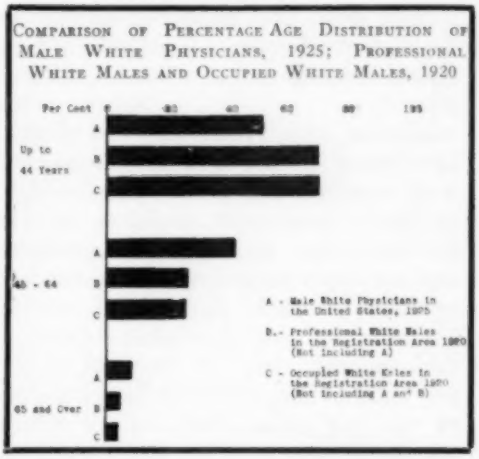
PERCENTAGE AGE DISTRIBUTION OF MALE WHITE PHYSICIANS, PROFESSIONAL WHITE MALES, AND OCCUPIED WHITE MALES
(U. S. Census 1920, Vol. IV, Ch. 4)

Age Group	Physicians	Professional Groups (Not including Physicians)	Occupied Males (Not including Physicians or Professional Group)
Up to 44 years..	50.2	68.2	69.5
45–64.....	41.7	27.0	26.0
65 and over.....	8.1	4.8	4.5

The distribution of physicians over 45 years of age, by states for the four years, 1900, 1910, 1920 and 1925, is given in Table III.

CHART I

COMPARISON OF PERCENTAGE AGE DISTRIBUTION OF MALE WHITE PHYSICIANS, 1925; PROFESSIONAL WHITE MALES AND OCCUPIED WHITE MALES, 1920


Per Cent
Up to 44 Years
45 - 64
65 and Over
A - Male White Physicians in the United States, 1925
B - Professional White Males in the Registration Area 1920 (Not Including A)
C - Occupied White Males in the Registration Area 1920 (Not Including A and B)

From all of these it will be evident that male physicians include a higher percentage of their entire number above the age of 45 years than do the other professional groups and to an even greater degree than is the case among all occupied white males, and that this excess grouping in the later decades of life has increased rapidly within the past fifteen years.

TABLE III

PERCENTAGE OF MALE PHYSICIANS 45 YEARS OF AGE AND OVER BY STATES

	1900*	1910*	1920†	1925‡		1900*	1910*	1920†	1925‡
New Hampshire	29.9	45.7	63.5	82.2	Illinois	37.8	38.7	47.8	66.8
Indiana	48.9	47.2	59.1	72.0	Massachusetts	35.0	38.3	47.5	66.9
Maine	39.9	45.0	58.1	63.7	West Virginia	36.2	33.9	47.4	58.5
Colorado	37.5	41.4	57.1	68.7	Florida	48.6	38.0	47.3	52.6
Ohio	39.9	45.4	56.1	52.4	South Dakota	39.0	33.0	47.2	63.8
Texas	37.5	42.5	56.1	46.2	Alabama	35.9	32.5	46.9	53.8
Oklahoma	34.7	34.4	55.5	69.5	Maryland	39.4	39.4	45.5	41.0
Kentucky	39.6	40.3	55.3	70.1	Nebraska	40.1	38.2	45.3	64.2
Missouri	39.0	43.0	55.2	72.5	Idaho	36.7	32.7	44.8	59.8
Arkansas	39.9	39.3	55.1	71.6	Virginia	40.8	36.9	44.6	57.6
Nevada	....	34.6	54.5	69.5	Georgia	33.5	36.7	44.1	61.4
Kansas	47.5	43.2	54.2	66.6	New York	34.2	39.0	49.8	61.4
New Mexico	38.6	35.0	52.9	64.8	New Jersey	36.8	37.3	43.5	53.4
California	45.7	44.5	52.4	57.7	Mississippi	39.5	31.9	43.5	60.9
Iowa	39.4	39.8	52.3	67.2	North Carolina	39.3	39.9	42.8	56.0
Tennessee	41.8	42.4	51.5	62.2	Arizona	38.1	35.3	42.8	58.2
Wisconsin	35.4	39.1	51.5	64.0	District of Columbia	39.0	32.3	42.8	50.7
Washington	39.8	34.9	51.2	67.0	Louisiana	31.3	28.6	41.9	52.7
Delaware	41.4	46.1	50.3	46.7	North Dakota	23.6	20.6	39.8	66.3
Michigan	41.8	42.9	50.1	49.4	South Carolina	34.6	35.1	39.7	54.8
Connecticut	38.5	41.9	49.1	56.5	Montana	26.6	30.4	38.9	61.9
Pennsylvania	36.2	39.2	48.5	59.6	Wyoming	36.1	29.1	38.2	60.9
Oregon	47.6	39.4	48.2	62.1	Utah	42.0	34.9	36.8	53.7
Rhode Island	33.6	35.8	48.0	59.4	Vermont	40.2	40.1	21.0	70.7

* From *Statistics Regarding the Medical Profession*, compiled by Committee on Social Insurance. Pamphlet VII, p. 58.

† U. S. Census 1920, Occupation Statistics. Vol. 4.

‡ 1925 from examination of 39 per cent of the records of 134,361 male white physicians of United States in A.M.A. file.

This finding was to have been expected by anyone familiar with the changes in medical education and practice during the past twenty-five years. The importance of these facts for the purpose of the present study will appear at once when the high death rates of physicians from certain common causes of death are considered.

Mayers and Harrison,[2] and Pearl[3] have made quite recent studies and reports upon the distribution of physicians by large geographic divisions of the United States, drawing the conclusion that the opportunity for earning financial rewards for their professional services has been the main determining factor in this, and that there are more physicians per 1,000 of the population in the regions of high per capita wealth of the general population than in other divisions of the country. If this selective distribution of physicians can be assumed to play any part in affecting their death rates, based on general experience, it should prove to be a factor contributing to lower death rates among physicians than prevail among occupied males of the same age groups in the general population.

PHYSICIANS BY AGE GROUPS (1925)

From the best records available, the card file of physicians and their death reports in the American Medical Association office, we find that in 1925 there were 134,361 male white physicians in the United States. To arrive at the distribution of these physicians by age groups (34 years or under, 35–44 years, 45–54 years, 55–64 years, 65–74 years, 75 years and over) the following three counts were made:

MALE WHITE PHYSICIANS, UNITED STATES, 1925

	Total 100%	To 34	%	35–44	%	45–54	%	55–64	%	65–74	%	75	%
A. N. Y. State by actual count of all physicians.	16,642	3,074	18.5	2,815	16.9	5,575	33.5	2,979	17.9	1,692	10.2	507	3.0
B. U. S. by random sampling*	38,306	5,334	14.0	10,335	27.0	11,246	29.3	7,039	18.4	3,178	8.2	1,174	3.1
C. U. S. (A and B)†	52,415	7,888	15.1	12,347	23.5	16,201	30.9	9,642	18.4	4,702	9.0	1,635	3.1

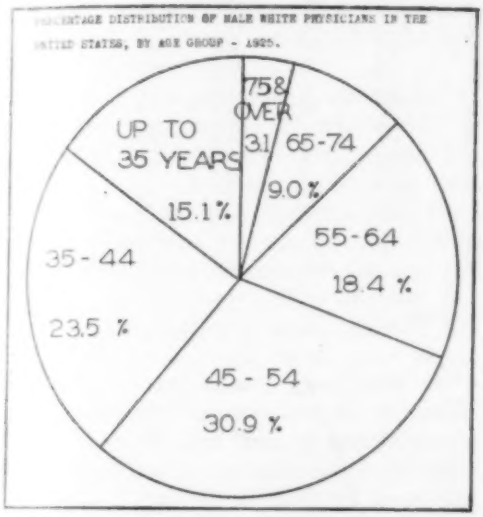
* These figures were obtained by sampling at random of physicians listed in the A.M.A. Directory, by state, in no case less than 10 per cent being taken, and in some small states, all being counted. A total of 38,306 were counted, or 28 per cent of all male white physicians in the United States.

† These figures are based on the 38,306 sampled in all states, plus 14,109 additional to complete the count of all in New York State, or a total of 52,415 (38.9 per cent of all male white physicians in the United States). It is on the figures in this group that calculations are based.

Basing the distribution of the physicians by age groups upon the distribution of 38.9 per cent of all physicians, actually checked off for age, we estimate that the 134,361 male white physicians of the United States in 1925 were distributed as follows:

Under 35	35–44	45–54	55–64	65–74	75
20,289	31,575	41,518	24,722	12,092	4,165
15.1%	23.5%	30.9%	18.4%	9.0%	3.1%

CHART II



DEATHS AND DEATH RATES OF PHYSICIANS

The deaths of male white physicians in 1925, and their death rates from all causes by age groups, compared with the death rates of all occupied males in the registration area of the United States (82.3 per cent of the total population of the United States) 1920 are given in Table IV.

TABLE IV

DEATH RATES FROM ALL CAUSES, MALE WHITE PHYSICIANS, U. S. 1925, AND ALL OCCUPIED MALES IN REGISTRATION AREA, 1920 *

	Number Male White M.D.'s	Deaths Male White M.D.'s	Death Rates per 1,000 of Specified Age Group		Death Rates per 1,000 Occupied Males 1920
25–34.....	20,289	54	2.7	4.9	7.06
35–44.....	31,575	203	6.4		
45–54.....	41,518	494	11.9	16.5	16.48
55–64.....	24,722	599	24.2		
65–74.....	12,092	681	56.3	73.4	84.83
75 and over	4,165	513	123.2		

* U. S. Census Occupation Statistics, 1920, Vol. IV.

In Table V is given the comparison of the death rates from nine important causes of death for male white physicians and for the total occupied male population of the registration area in 1920.

It will be seen that the physicians' death rates for all ages combined exceeds that of the occupied male population of all ages from heart diseases, pneumonia, and diabetes, while the reverse is true in the case of chronic nephritis and Bright's disease, violence, typhoid fever, pulmonary and other forms of tuberculosis, and in cancer.

Table VI gives the deaths and death rates of male white physicians in 1925 for all those causes of death as tabulated currently by months at the American Medical Association office. It is clear that the death rates for physicians are in some age

TABLE V

COMPARISON OF DEATH RATES PER 100,000 OF MALE WHITE PHYSICIANS FOR 1925, MALE WHITE POPULATION OVER 25 YEARS (REG. AREA), 1923, AND OCCUPIED MALES, 1920 (REG. AREA) FOR CERTAIN DISEASES BY AGE GROUPS

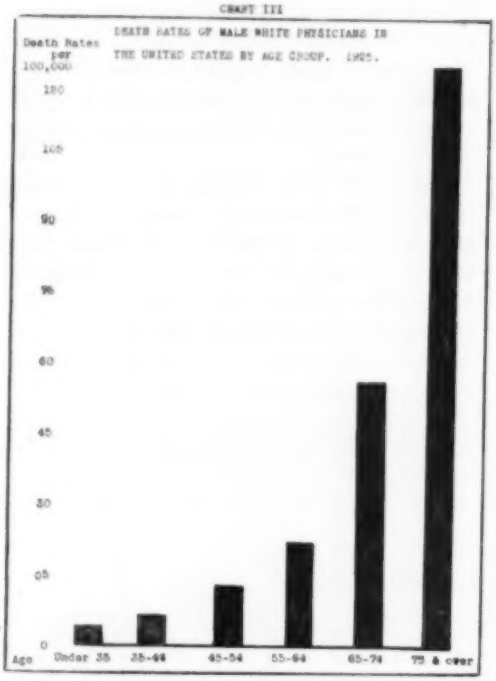
Cause of Death	All Ages A. Male White M.D.'s 1925	All Ages B. Occupied Male Pop. 1920	All Ages C. Male White Pop. Over 25 yrs. 1923	25–44 A.	25–44 B.	25–44 C.	45–64 A.	45–64 B.	45–64 C.	65 and Over A.	65 and Over B.	65 and Over C.
Organic heart diseases.	363.9	164.9	301.0	79.1	38.9	52.9	383.4	229.6	343.9	1187.2	1810.3	1963.7
All pneumonia	165.9	126.1	121.8	67.4	97.2	51.6	161.5	146.9	197.7	498.2	626.2	579.4
Nephritis and Bright's Disease	85.5	109.2	172.1	28.9	28.0	26.8	108.7	164.4	162.9	172.2	1111.7	1091.1
Violence except suicide	70.7	126.4	125.7	57.8	112.5	125.1	60.3	125.6	155.4	153.8	303.6	316.7
Typhoid fever	7.4	9.7	7.0	5.7	8.8	7.4	10.6	7.4	6.3	——	9.3	5.3
T. B. respiratory tract.	35.0	142.0	123.3	32.8	147.0	115.2	39.2	153.3	130.6	24.6	211.0	151.0
Other T. B.....	4.5	10.5	10.2	5.7	10.0	8.6	4.5	11.2	10.2	——	19.2	15.6
Cancer	87.0	88.6	157.8	13.5	19.4	22.7	108.7	169.6	202.1	233.7	746.6	822.5
Diabetes	32.0	16.0	29.4	1.9	6.9	6.6	31.7	28.4	36.6	129.2	110.8	138.7

TABLE VI

DEATH RATES PER 100,000 AMONG PHYSCIANS FROM PRINCIPAL CAUSES BY AGE GROUPS—1925

Causes of Death	All Ages Deaths	All Ages Per 100,000	25–44 Yrs. Deaths	25–44 Yrs. Per 100,000	45–64 Yrs. Deaths	45–64 Yrs. Per 100,000	65 and Over Deaths	65 and Over Per 100,000
Total male white phys.	134,361							
Heart disease	488	363.9	41	79.1	254	383.4	193	1187.2
Angina pectoris	100	74.4	5	9.6	57	86.0	38	233.7
Lobar pneumonia	195	145.1	32	61.7	94	141.9	69	424.4
Apoplexy	187	139.1	7	13.5	102	153.9	78	467.4
Nephritis	115	85.5	15	28.9	72	108.7	28	172.2
Cancer	117	87.0	7	13.5	72	108.7	38	233.7
Senility	88	65.5					88	541.3
Accidents except suicides	86	64.0	24	46.3	37	55.8	25	153.8
Suicide	61	45.4	13	25.1	38	57.4	10	61.5
Tuberculosis respiratory tract	47	35.0	17	32.8	26	39.2	4	24.6
Diabetes	43	32.0	1	1.9	21	31.7	21	129.2
Arterio sclerosis	43	32.0	—	—	22	33.2	21	129.2
Other dis. of diges. system	43	32.0	8	15.4	23	34.7	12	73.8
Appendicitis	31	23.2	9	17.3	16	24.2	6	36.9
Other dis. of resp. system	30	22.3	3	5.7	17	25.7	10	6.15
Paresis or general par. insan.	30	22.3	1	1.9	8	12.1	21	129.2
Broncho pneumonia	28	20.8	3	5.7	13	19.6	12	73.8
Influenza	23	17.1	3	5.7	9	13.6	11	67.7
Cirrhosis of liver	17	12.7	3	5.7	12	18.1	2	12.3
Dis. of stomach	16	11.9	2	3.8	9	13.6	5	3.08
Typhoid	10	7.4	3	5.7	7	10.6	—	—
Other epidemic or infectious dis.	14	10.4	7	13.5	6	9.1	1	6.2
Homicide	9	6.7	6	11.5	3	4.5	—	—
Other tuberculosis	6	4.5	3	5.7	3	4.5	—	—
Chronic bronchitis	2	1.5	—	—	—	—	2	12.3
Hernia	3	2.2	—	—	2	3.0	1	6.2
Ill defined or not stated	432	—	12	—	36	—	384	—
All other causes	280	—	32	—	134	—	114	—
All causes	2,544	—	257	4.96	1093	16.5	1194	73.44
Death rate per 1,000		18.93						

From figures supplied by the American Medical Association.



groups based on so small a number of deaths as to offer a considerable statistical error.

A distressing commentary upon the character of professional attention given to physicians in their final illnesses, or at least upon the accuracy of certification of the cause of death is the fact that of the 2,544 deaths recorded for physicians in 1925, 432, or 16.9 per cent, were reported from ill-defined or undetermined causes. In New York City the per cent of death certificates giving similar unsatisfactory causes of death in the general population in 1925 was .7 per cent, and in the registration area as a whole in 1923 was 1.4 per cent.

SUMMARY

While the number of male physicians in the United States in the years between 1890 and 1910, who were 45 years of age or older, did not vary much from 40 per cent of the total number of male physicians in the country, the percentage at present is just over 60. This change in the age distribution has occurred widely throughout most of the states of the country.

In comparison with the ages of men employed in other professions than that

of medicine and with men in all other occupations than the professions we find a lower percentage of the physicians in the age group under 45 years, and a correspondingly higher proportion in each of the age groups 45–64 years and 65 years and over.

The death rates from all causes combined among male white physicians in the United States in 1925 were lower than those of all occupied males in 1920, in the age groups 25–44 years, and 65 years and over, and almost incidental in the age group 45 to 64 years.

While there are minor exceptions in the three age groups (25–44, 45–64, 65 and over) the specific death rates for organic heart diseases, pneumonia, and diabetes are decidedly higher among male white physicians in the United States than among the occupied males of the country as a whole. For chronic nephritis and Bright's disease, violence except suicide, typhoid fever, and other forms of pulmonary tuberculosis, and cancer the reverse is true. The lower rates among physicians are particularly marked under the categories violence other than suicide, and tuberculosis in all forms.

Of the 2,544 deaths of male white physicians in the United States comprised in the records in the office of the American Medical Association, in the case of 432, the cause of death was not specified or was ill defined, constituting a larger source of error and betraying a greater carelessness on the part of the attending physicians in charge of their fellow practitioners than is believed to occur in other mortality registration experience in this country.

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TAKING THE SUN-CURE AT PERRYSBURG (N. Y.) SANATORIUM

HEALTH EDUCATION SOURCE MATERIAL AND CRITERION BY WHICH IT CAN BE JUDGED*

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THE SHIFTING of emphasis from cure to prevention has had a marked effect upon school health programs. Propaganda to stimulate the interest of educators in health has had its result, and the problem now is, how accurate, suitable material can best be prepared and selected for the use of elementary and high schools as well as colleges.

The educators of this country have demonstrated their desire to advance the knowledge and practice of health through the schools. This is evident to a greater extent to-day than ever before, as indicated by the increasing demand from school officials for health literature. The announcement of a health publication for school use is followed by immediate requests; orders being placed months before the publication is off the press, if even a rumor of its appearance is permitted.

Who selects health literature to be used in schools? What is this health literature which is being eagerly grasped by educators?

Committees appointed by state and local school boards issue at intervals a book list from which teachers are at liberty, within budget limitations, to order texts for their classes. Such lists, depending upon the personnel of the committee, may be excellent, good, fair, or poor. In addition to these lists, courses of study suggest other sources from which free material may be secured.

The health teaching in the schools of this country depends to a great extent upon the book list and the course of study offered.

Book committees seldom include a representative of the local health department, or indeed anyone familiar with the modern health movement. As a result, books are adopted year after year that contain statements which are inadequate and inappropriate, if not misleading and inaccurate.

Generally speaking, the health publications used in schools are good. The advance in this field is tremendous and we have every reason for encouragement in the continuous stream of really valuable material now being made available. There are, however, many school systems still untouched by the newer publications, while others are accepting ineffectual, inaccurate, or partial truths, clothed in the brilliant garment of a "big name."

These names fascinate school people, especially if accompanied by a list of the various scientific societies of which the author is a member, as well as his scholastic degrees. Educators, not being unlike other intelligent beings, have a wholesome respect for the profession of medicine, a science about which they know little. They expect, quite rightly, that the name of this or that national association, of which the author is a member in good standing, guarantees the book or article as being scientifically sound. So when the books suggested by ready publishers carry title pages which seem to offer impregnable evidence of authority, there is little questioning as to the value of the book.

* Read at the Joint Session of the Child Hygiene and Health Education and Publicity Sections of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 14, 1926.

COMMERCIAL LITERATURE

The popularity of health teaching has resulted in the enormous production of literature prepared to increase the use of various products and this is eagerly sought by teachers desiring assistance in their health programs. As it is usually free and book allowances are inadequate, the teachers, particularly those who are zealous but not critical, grasp the offer without much consideration as to the accuracy of the statements, basing their decision as to the value of the material on the probability of its interesting the pupils. Fortunately, most of the printed matter so issued is good, both because business groups recognize the importance of making statements which can be substantiated and of using expert advice in the preparation of the layout, typography, and illustration.

RESPONSIBILITY OF HEALTH AUTHORITIES

Until a few years ago health authorities thought their responsibility for the school health program ended with supervision of sanitation. Then medical inspection and school nursing came into practice for the purpose of preventing the spread of infection, but only in rare instances has there been any attention given by health officials to the type of health instruction used in the classroom.

To some extent there has existed actual antagonism between departments of education and health. Consequently, the educators have not called upon the health group, whom they have considered indifferent if not unfriendly, when deciding upon plans for health instruction.

Obviously the health teaching of 20,000,000 children in the schools each year should have its effect upon public thinking! As the health department is charged with the responsibility for the health of its people, can they any longer ignore their great opportunity to influence for right or wrong this large part of the population? Though antagonism does exist between health departments and departments of education in many instances which cannot easily be eradicated, the health of children is of such importance that a way must be found to overcome the difficulties. Health authorities can no longer satisfy themselves that all is well with their local schools because their records prove the mortality rates have improved, a greater number of physical defects have been corrected, and contagious disease lessened. This is not enough if we are to build for the future.

Health does not necessarily follow because physical defects are corrected and the spread of infection is prevented. A pure water and milk supply, sanitary surroundings, freedom from eye strain, adenoids and diseased tonsils, do not necessarily assure healthy bodies. Even though diphtheria, measles, and other contagious diseases are prevented, we may still have a great group of children below par, unless personal hygienic practices have been inculcated. The school can accomplish much with a minimum of effort but the assistance and coöperation of the health authorities should further strengthen this part of the school health program.

APPLYING PRESENT KNOWLEDGE

All school children have the right to benefit by our knowledge about health. To bring this about, mutual respect between educators and health authorities must be encouraged and a method of working together developed. This can only be done through better understanding of the contribution each group has to make to the school program.

Educators know how children should be taught and can discriminate as to which facts should be used and at what ages these facts should be presented. They are responsible also for the machinery whereby the running of schools is possible; and should therefore be accepted as the final authority in matters of administration and methods of teaching.

Health authorities know about disease and how to prevent it, and have essential health information. The opinion of this

group should therefore be accepted as final regarding health facts to be taught to school children. Thus it will be seen that only by close and sympathetic association between the two departments of our state and city governments can we hope to bring our goal to a realization.

OUT-OF-DATE BOOKS

When visiting the schools of the Panama Canal Zone several years ago, it was found that the hygiene books in use in the sixth grade were about ten years old; the information being imparted in the usual fashion as authoritative. At this time the health department, housed in the same building as the department of education, had issued a report in which a pink slip had been inserted because, as the chief health officer explained, "We found later information had rendered that statement about malaria to be inaccurate, and as the report was in process of printing, it was necessary to insert the corrected statement." It was, as you see, considered of such importance to furnish adults only facts of scientific accuracy, that special printing was necessary, while the children in the schools were being taught about malaria from a book ten years old.

Inquire as to the books used in your schools and you will want in some instances to offer high praise, and in others to see that "pink slips" are inserted, if new books are not possible.

Over and over we hear from school people that the appropriation for books has been cut. Some activity on the part of those especially interested in health, however, may prevent this slaughter of funds for health books—it is worth considering.

ASSISTANCE FROM HEALTH DEPARTMENTS

Then, too, there is another possibility, that of furnishing accurate, interesting and suitable health literature for teachers and pupils directly through the health department. Much money is spent by health departments in all of the larger cities each year on education through print; but little literature is prepared with regard to school needs.

There is rarely anyone connected with official health departments sufficiently familiar with school needs to prepare such helpful school health literature, but this is a condition easily remedied. The appointment of one person, well trained in education and familiar also with the local school needs and practices, on the staff of the health department is all that is necessary.

Our present method of health instruction, in even the less advanced schools, offers tremendous opportunities for the wider use of scientific health material, but it will be used effectively only if prepared with a view to the particular needs of the local school system.

Teachers are advised to write their health departments in regard to classroom health problems; but as one teacher said, "All that they sent me was a pamphlet on venereal disease and on tuberculosis care, and I did not find those especially helpful in the fourth grade. . . . I have cleaned up heads and gotten glasses for all who need them. What is most important now?" That teacher wanted assistance in deciding just what she should impress upon her 9 year old pupils, for instance, the best way for her to help her pupils to be free from diphtheria. Immunization is only a word to most teachers and suggests an unpleasant performance with serums and hypodermics, which, because she has not been informed, she fears as much as do her pupils. A simple explanation about immunization, about foods, and other essential laws of personal hygiene, will be accepted by school authorities, and welcomed heartily by teachers.

NEWER KNOWLEDGE NOT AVAILABLE

Tremendous advances are being made in knowledge affecting health, but these facts reach the school slowly. Ventilation, for instance! The findings of the New York Ventilation Commission

should transform schoolroom practices as well as the teaching of the subject. It will, however, be some time before the latest knowledge reaches the children or their teachers. Should not every child know of the marvelous powers of the sun and that the direct rays are most beneficial? Such facts can easily be furnished to schools by local health departments. The scientific journals every month contain reports of new discoveries which are months and sometimes years in reaching the schoolroom.

The leaders of an important girls' organization numbering about 100,000 have had recommended to them this year in connection with their health program an annual physical examination. Many questions as to what constitutes a thorough physical examination have arisen, and as a result word has gone forth, "Inquire of your health department." Here are 100,000 potential mothers, thousands of whom will welcome help in printed form. Surely it is worth while for the local departments to be prepared to inform these young people.

USABLE MATERIAL

The health commissioner of one large city said recently, "We recommend and supply in limited quantities the excellent publications of the United States Bureau of Education." Others report that they use material of national groups. This is a most desirable procedure and there is every reason why this should be done. The small green folder of the U. S. Bureau of Education, *Interest-Arousing Devices for Health Teaching,* lists helpful publications for school use and also carries a list of health essentials and how to teach them. This can be sent out in answer to queries of teachers.

The publications of the American Child Health Association are invaluable and are based on the work of experts whose time could not usually be secured by a local group.

The Metropolitan Life Insurance Company has had 81,800 requests from educators during the first 8 months of this year. These requests call for millions of pamphlets. During this period the National Dairy Council has supplied 25,000 teachers with one million copies of material free, and has sold two million copies.

If it is not practicable to advise the use of satisfactory publications of commercial groups, it is possible for local groups to quote from this material when it is scientifically sound and carefully prepared for school use.

THE BUSINESS OF PREPARING MATERIAL

A questionnaire circulated recently to city health commissioners resulted in evidence which is quite convincing—health officials do not prepare health literature for school use but consider this the business of the schools. This seems to be true whether medical inspection is conducted by the department of education or by the health department.

The following quotations are significant:

"It has not been found practicable to have printed any regular informative literature for school use."

"So far the local health department has not put out any original literature. We have this year a compulsory immunization law for school children."

"One bulletin on milk, published in coöperation with local dairy council."

"No health material furnished schools."

"The health instruction begins in the first grade and continues through the entire school course. The health department is not concerned in this instruction course except if its advice and suggestion may be requested from time to time."—This from a city where the health department is responsible for medical inspection and school nursing.

This attitude does not, however, always exist.

The State Department of Health of Kentucky has issued a very useful card for school use carrying diets for the school child, as well as standard height and weight tables.

The City Health Department of Syracuse has developed excellent material for

children and their fathers, mothers, and teachers. This has appeared in coöperation with the Milbank Fund Child Health Demonstrations, and can well be considered for other cities.

STANDARD OF JUDGMENT

The criteria by which health education material for schools can be judged:

Does it meet a need?

Is it scientifically up to date?

Is it suitable for the group addressed? (Only an educator can decide this point.)

Is it as attractive and as easy to read as funds permit?

Does it meet the requirements of visual education?

These questions can be answered only by a joint group representing three points of view: first, the local school people familiar with local needs and thoroughly informed as to material required in each grade, second, the health authorities, and third, experts in layout.

The children in our schools are the fathers and mothers of the next generation. They are to be the voters who will decide the appropriation for public health activities. The literature we present to their teachers and to them will, in a large measure, decide the health conscience as well as the health practices of the whole land twenty-five years from now.

We can afford to give them only our best. The schools offer you an audience of about 20,000,000 a year whom you can reach and who will help you to reach their fathers and mothers. The teachers are not trained health workers, but they are rapidly becoming staunch lieutenants in the army of health workers. See that they are armed with adequate information!

Share with the teacher your best, and the teacher will help you win the struggle against disease!

SUMMARY

To summarize—educators need assistance from health authorities in the adoption of health literature, but custom has established methods of selecting school literature which do not take into consideration the views of health authorities. The selection of health literature for schools is now dependent upon school book committees composed usually of educators only. It is rather the exception for even a local doctor to be consulted in the adoption of health books for school use.

In the 20,000,000 school children in the United States there is a potential public to be influenced, which fact health authorities cannot afford to ignore.

How health shall be taught and what shall be taught at certain ages can only be decided by the educator.

The accuracy of health information and the relative importance of various health facts and practices can best be decided by health authorities.

The present situation which is almost a deadlock, can only be remedied by the establishment of a sympathetic understanding between departments of health and education.

Some first steps are the following:

1. Form joint local committees of educators and health authorities.

2. Health authorities familiar with modern education scrutinize health literature now used in local schools and also that proposed for use.

3. Issue up-to-date, seasonable information through departments of health. This to be prepared with the assistance of an educator thoroughly familiar with the local schools and the modern school health programs.

4. Recommend existing health literature of the U. S. Bureau of Education, American Child Health Association, and other reliable groups, such as The Metropolitan Life Insurance Company and the National Dairy Council.

5. Secure the assistance of an expert in layouts, assuring attractive appearance, and type large enough for the use of children for whom the book is prepared. Well leaded—wide margins—dull finish paper—*good* illustrations or none at all.

CURRENT IMMUNIZATION PRACTICE IN DIPHTHERIA, SCARLET FEVER AND MEASLES

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IMMUNIZATION against scarlet fever, and in fact diphtheria, was such a new procedure at the time of the general survey of administrative practices in cities in 1924 that very little information as to the extent of this service could be obtained. With increased use and more widespread knowledge of the successful application of biologicals, particularly in diphtheria, constant requests have come to the Committee on Administrative Practice of the American Public Health Association and to the Welfare Division of the Metropolitan Life Insurance Company for information as to current and approved methods of preventing the diseases in question. The matter of availability locally of biological products and service for their administration has also been a matter of inquiry.

Brief investigation by the authors early in the year disclosed the fact that no agency had yet gathered information as to the probable distribution of persons protected against diphtheria. It was believed that this information should be available and it was decided that the interest already manifest in treatment and prevention of scarlet fever and measles warranted the inclusion of questions regarding administrative practice in the treatment of these diseases.

The collection of these data seemed to be a logical function of the information service of the Committee on Administrative Practice of the American Public Health Association. Consequently, after some preliminary consideration of the problem and a type of questionnaire that promised to be most productive, a request was sent to two hundred health officers asking specific questions as to the practice in their communities. These questionnaires were distributed in May, and by July 42 per cent had been returned. At that time a brief preliminary report of the results was made through the *Health Officers' News Letter*, in order to encourage further and more complete reporting.

The final tabulation covering the current immunization and biological treatment procedures in connection with these diseases is based on the findings contained in reports from 106 cities, or 53 per cent of the communities to which the questionnaires were addressed. The cities are distributed according to population as follows: 13 cities over 500,000; 45 cities from 100,000 to 500,000; and 48 cities from 40,000 to 100,000.

While there is considerable divergence of opinion and practices among health officers concerning the protective methods studied, relatively slight differences exist with regard to diphtheria. There is less unanimous agreement as to the proper procedure regarding scarlet fever, and still less on measles. It is believed, however, that the findings demonstrate certain methods as clearly established; disclose accomplishments of importance where the procedure is clear; indicate definite and reasonably assured trends in the less well defined fields; and reflect a

wholesome and promising, yet conservatively experimental, approach in the field where a uniformity of method has not as yet been attained. The results of this study will be presented by diseases.

DIPHTHERIA

Concerning the distribution of toxin-antitoxin for diphtheria, the most usual way to make it available seems to be through clinics or health centers. Eighty-nine per cent of the 97 cities reporting made immunization available through these channels. Seventy-eight per cent of cities provided toxin-antitoxin for physicians—71 per cent without charge. A like number of cities provided it for the use of school physicians, only 5 per cent of which required that the material be paid for. It is significant that 13 per cent of the cities which reported do not supply toxin-antitoxin. In the 79 cities which reported the number of immunizations last year there were a total of 375,000 children completely protected. Comparing this with the standards of annual service set up in the *Appraisal Form*, which recommends the protection of 25 per cent of the preschool population—for these cities this would mean a total of 530,799 immunizations. So it is seen that these cities as a group have presumably made a quite substantial start on diphtheria prevention.

The city health department is without question the usual agency providing diphtheria immunization. In 88 cities, or 91 per cent of those reporting, the immunization service is established as a function of the health department. In 20 cities the board of education carries on this service, and in 12 cities the state department of health is active in the protection of children against diphtheria.

Considerable question has been raised as to the use of the Schick test preliminary to diphtheria immunization. The tendency seems to be to omit it in the early age groups but to use it for children of 8 to 10 years and over. Only 17 cities use the preliminary Schick for preschool children, while 32 cities recommend it in the early school years and 43 cities recommend it for children over 8 to 10 years. The practice of re-Schicking children several months after inoculation is not yet established as a definite policy. Forty-five per cent of the 104 cities reporting practice this final test for immunity, while 55 per cent have not yet taken this step, though they may advocate it. The proportion of children immunized last year which have been re-Schicked in the various cities is shown in Table I.

TABLE I

PERCENTAGE OF CHILDREN IMMUNIZED LAST YEAR WHO HAVE BEEN RE-SCHICKED

	Cities of 500,000 and Over	Cities of 100,000 to 500,000	Cities of 40,000 to 100,000	Total Cities
None re-Schicked	2	21	24	47
Less than 25 per cent.	5	6	5	16
25 to 49 per cent.....	1	1	2	4
50 to 74 per cent.....	2	2	2	6
75 per cent or more..	2	2	6	10

Fifty-seven per cent of the cities report none re-Schicked, while 12 per cent report that more than 75 per cent of their immunizations had the final test.

The distribution of immune population seems to be largely in the school age. Sixty-five cities, or 93 per cent of those reporting, state that less than 25 per cent of the preschool population have been immunized, while but 58 per cent of the cities report less than 25 per cent of the school population immunized, and 20 cities, or 25 per cent of those reporting, indicate better than 50 per cent of their school population protected.

SCARLET FEVER

Thus we see that the practice with regard to diphtheria seems to be rather clear-cut, but when we turn to scarlet fever the decisions are somewhat less definite. Fifty-one per cent of the 90 cities reporting believe that the results obtained from the use of scarlet fever toxin and antitoxin justify their use being advocated in public health literature, though only 29 per cent have advocated the Dick test and but 27 per cent have advocated the use of scarlet fever toxin for active immunization. The use of antitoxin enjoys some-

what greater confidence. Thirty-three per cent of the cities recommend it for passive immunization and 54 per cent recommend it for treatment. The trend in the use of toxin for active immunization of certain groups of children is interesting. While only 23 per cent of the cities recommend it for general use it gains favor where the groups are small and controlled. Table II shows the trend in this practice.

TABLE II

CITIES WHERE SCARLET FEVER ANTITOXIN IS RECOMMENDED

	Cities of 500,000 and Over	Cities of 100,000 to 500,000	Cities of 40,000 to 100,000	Total Cities
General use				
Yes	1	10	10	21
No	11	28	30	69
For children exposed				
Yes	5	11	16	32
No	8	27	25	60
In localized outbreaks				
Yes	6	14	13	33
No	7	24	28	59
In institutions				
Yes	9	19	21	49
No	4	18	20	42

It is of interest that even with the development of preventive and curative measures at about the same time, the curative treatment has been more widely accepted—another example of the willingness of the public to accept treatment before prevention.

The provision of biologicals for scarlet fever by health departments naturally follows the course of their practice. Twenty-eight per cent of the cities provide scarlet fever toxin; in most cities this is free; 41 per cent provide the antitoxin, and likewise, without charge.

of those reporting on this question, feel that the experience justifies confidence in the use of convalescent serum, though but 19 cities, 20 per cent of those reporting, have taken any steps to provide a supply of convalescent serum for hospitals or institutional cases, and only 12 cities have attempted to provide it for private medical practice. The general education of the medical profession or of the public in its use is on an equally low plane and only about 3,000 cases are reported in which the serum was used last year, two-thirds of which are reported from cities over 500,000.

STATE PRACTICES

The summary of state practices with regard to biologicals for these diseases indicates that toxin-antitoxin is made available to local health departments, physicians and school doctors, in only 32 states; in 17 of these it is provided free and in 15 it is sold. In 30 states, or 75 per cent of those reporting, the state department has directly fostered the development of local clinics through the provision of toxin-antitoxin, medical or nursing service, or literature.

With regard to the use of the Dick test and scarlet fever toxin or antitoxin, 19 states have advocated the Dick test for scarlet fever immunity and 22 states advocate the use of scarlet fever toxin and antitoxin, though but 11 have made arrangements for making toxin available for active immunization and 18 have made

TABLE III

APPROXIMATE NUMBER OF CASES IN WHICH TREATMENT AGAINST SCARLET FEVER WAS USED DURING 1925

	Cities of 500,000 and Over		Cities of 100,000 to 500,000		Cities of 40,000 to 100,000		Total	
	Cases	Cities	Cases	Cities	Cases	Cities	Cases	Cities
A. Scarlet fever toxin	6,654	3	595	3	200	8	7,449	14
B. Scarlet fever antitoxin for								
Prevention	445	5	10,609	6	1,010	15	12,064	26
Treatment	1,432	8	663	12	875	22	2,970	42

MEASLES

The practice with regard to the use of convalescent serum in measles is very closely tied up with the availability of the supply. Thirty-five cities, or 56 per cent

antitoxin for passive immunization or treatment available.

The picture of state practice with regard to measles parallels that of cities; but 7 states have advocated the use of

convalescent serum for temporary immunization of contacts.

From the analysis of even this incomplete data several points appear so evident that they seem worth emphasizing in conclusion:

1. Toxin-antitoxin in the prevention of diphtheria has not as yet been sufficiently used in the preschool years. Morbidity and mortality experience indicates the importance of these years, and efforts should be directed to protect children in this period.

2. There is apparently little effort being made to provide immune serum for measles. Physicians should be encouraged to consider both its use and the replenishing of the supply.

3. The results demonstrate the importance of some central agency periodically taking stock of current practice.

ACKNOWLEDGMENT: The authors personally desire to express their appreciation and thanks to those health officers who were good enough to return the data, and to the Metropolitan Life Insurance Company Statistical Division, for the tabulation of the returns.

ELECTROPHORETIC POTENTIAL AND THE VIRULENCE OF BACTERIA*

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THE ANALYSIS of certain problems concerned with the virulence of bacteria has already been presented at considerable length by the authors in a series of articles.† We have attempted by various devices to substitute for the usual animal technic for the measurement of virulence a series of physical measurements that would enable the continuance of types of experimentation which are otherwise extremely difficult or impossible to conduct.

It has long been known that the clumping or agglutinating reactions of bacteria in the presence of serum or other substances are correlated with virulence to animals. From a long series of experiments which have been conducted by many investigators it has become evident that the agglutination reactions are associated with or determined by specific alterations in the electrophoretic potential on bacteria. Hence we have been concerned with a series of researches designed to determine the relation between these potentials and the virulence of bacteria.

The electrophoretic potentials are those which are measured when bacteria suspended in water are exposed to an electrical current and are found to move to the positive or negative pole. From the velocity with which the bacteria move in the electrical field it is possible to calculate the magnitude of the electrical charges or more specifically the electrical potential difference (P.D.) between the bacteria and the fluid in which they are suspended.

From measurements on 76 strains of pneumococci isolated from cases of lobar pneumonia (19 type I; 24 type II; 7 type III; and 26 type IV) it appears that the electrophoretic potentials are different for the several types. The highest potential (circa 11 micra per second) are uniformly found on type III organisms. The most probable sequence of decreasing potential is: III, I, II, IV. The potentials on type III organisms are sharply marked off from the potentials on the others; the potentials on types I, II and IV organisms are not so sharply marked

* Read before the Laboratory Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 14, 1926.
† See References, last page of article.

off. From measurements of virulence of pneumococci for white mice it appears that the sequence of decreasing virulence is: III, I, II, IV and is identical with that for decreasing potential.

Such information as is available indicates that the sequence: III, I, II, IV, represents the sequence for the fatality rates in pneumococcus pneumonias of the several types. It was found that for pneumococci of types II, III and IV cultures isolated from fatal cases of acute lobar pneumonia show higher potentials than those obtained from non-fatal cases. The reverse was observed for cultures of type I.

The isoelectric points of pneumococci (types I to IV) are near pH=3.0 and are not type specific. The electrophoretic potentials are correlated with inagglutinability by acid. The potentials are reduced by specific and by non-specific antisera, the greater effectiveness of the former being correlated with the greater effectiveness in causing agglutination.

Sodium oleate, which dissolves pneumococci as specifically as does bile, effects significant increases in electrophoretic potentials. Sodium oleate increases the suspension stability of pneumococci and reduces the titres of serum agglutinations.

A total of 15 strains (single cell) were isolated from Blake and Trask's A, B, and C cultures of pneumococci (A-type I; B and C are variant strains obtained from A by growth in the presence of homologous antiserum). Experiments with 14 strains (5 from A; 5 from B; 4 from C) and with parent strains demonstrate that each of the single-cell strains is indistinguishable from the parent strain from which it was derived with respect to electrophoretic potential, virulence for white mice and serum agglutination.

The isoelectric points of the pneumococcus variants B and C and of A are near pH=3.0 and are not definitely different. The P.D. for the pneumococcus variants is correlated with the inagglutinability by acid. It is found that the higher the P.D. at pH=6.5, the lower the pH necessary to cause spontaneous agglutination. The P.D. values for the variant types can be changed relatively by washing them. An inversion of the relative potential on variants A, B, and C is accompanied by an inversion in their agglutinability by acid. Type specific, homologous and heterologous antipneumococcus serum reduces the negative P.D.: the greater effectiveness of the homologous serum in this regard parallels its greater effectiveness in agglutinating the bacteria.

Sodium oleate, which is a specific solvent for pneumococci, dissolves the A, B, and C strains equally well. This finding is contradictory to the usual statement that virulence and solubility (bile) are parallel characteristics. The B and C variants of pneumococci are all of the S type, giving smooth colonies on nutrient or blood agar plates. From each of them we have obtained R strains by growth in the presence of specific anti-pneumococcus serum.

We have undertaken to determine whether "rough" colony varieties could be produced from the Blake Type I pneumococcus (designated as A) and its variants (designated as B and C respectively). We have also undertaken a series of experiments to determine changes in virulence and P.D. upon successive passage through white mice of cultures of significantly different virulence and P.D.

We have found that the sequence of decreasing virulence for white mice, decreasing P.D. and increasing agglutinability is: A, B, C. The A, B and C strains form "smooth" colonies on peptone, serum or blood agar plates. Strains which give "rough" colonies on blood agar plates have been produced from the A, B and C cultures by growth in broth to which specific antiserum had been added. After 23 transfers in serum broth, none of the cultures were completely converted to the rough varieties. Organisms of both the S and R varieties could be recovered. Some of the S varie-

ties, which were recovered after 23 transfers in broth containing antiserum, showed the virulence and the electrophoretic potential characteristic of the original cultures. Some of the S varieties showed reduced virulence and potential. The rough varieties recovered after 12 transfers of B and C strains in broth plus antiserum showed the same virulence and potential as the original B and C cultures. Hence, it appears that strains of pneumococci which differ significantly in virulence are not necessarily correspondingly separable into S and R categories.

The original A strain gives a prompt precipitation reaction with specific antiserum. The original B and C strains and the "rough" derivatives of A, B and C strains give only a slight, delayed reaction after 24 hours.

The A and B strains showed no significant changes in virulence, potential or agglutination after 4 and 8 passages through mice. Passage of the C strain through mice resulted in a reversion of its characteristics to those of the A strain.

In all cases studied, alterations in the virulence of pneumococci for white mice are accompanied by parallel alterations in electrophoretic potential and by reciprocal alterations in agglutinability.

It has long been known that virulent strains of pneumococci or other bacteria are not readily ingested by leucocytes and that avirulent strains are generally ingested readily. It has also been established that the presence of acids, alkalies, salts and other reagents modifies the velocity or the extensiveness of phagocytic reactions.

From experiments by Falk and Matsuda it has been found that in the presence of normal rabbit serum or of immune horse serum, the sequence of decreasing phagocytic indices is: C, B, A. For the opsonic indices, the series is: A=B>C. The enhancement of phagocytosis by the presence of unheated or heated immune serum is approximately proportional to the concentration of the serum.

It has been found that the sequence of the relative magnitudes of the P.D. values for the A, B and C strains is inverted by frequent washings with water from A>B>C to C>B>A. It was found, correspondingly, that the sequence of the phagocytic indices was also inverted.

If the P.D. on the pneumococci be reduced by such a salt as lanthanum nitrate, the phagocytosis is increased proportionately. If the P.D. be increased by sodium oleate, the phagocytosis is proportionately reduced. The phagocytic indices were similarly modified successively when suspensions of the pneumococci were treated first with lanthanum nitrate, washed, and then with sodium oleate, the procedure was reversed.

For such bacteria as the diphtheria bacilli which may produce a true toxin it was expected from theoretical considerations that the relations between P.D. and virulence (toxigenicity) might be the reverse of those found for pneumococci. This was found to be the case. Measurements made on 48 hour veal peptone broth cultures of toxigenic strains give potential differences of 5.0–1.0μ/sec. Avirulent (non-toxic) strains measured under the same condition give readings of 5.0–12.1μ/sec. These differences between the toxigenic and the non-toxigenic strains are not due to differences in the pH of the menstrua. Entirely similar differences in potentials were observed when the cultures were grown in sugar-free buffered broth at pH=7.2.

We have found no apparent parallelisms between the minimal fatal doses of triple-washed bacilli suspended in distilled water and their potentials in the same menstrua.

The lowest values observed in broth cultures of diphtheria bacilli were found on the Park-Williams No. 8 strain. Salted-out purified toxic materials from cultures of the diphtheria bacilli depress P.D. in a quantitative manner. If P.D. and M.L.D. of broth cultures are determined daily for 12 days an inverse paral-

lelism is found to exist. Thus from many lines of investigation it appears that the P.D. is an inverse measure of the virulence (toxigenicity) of diphtheria bacilli.

Inasmuch as the difference in P.D. between virulent and non-virulent strains of diphtheria bacilli is very great it was considered that it might prove possible to utilize the measurement of P.D. as a simple laboratory test for distinguishing virulent from non-virulent cultures that are sent to a laboratory in the routine diagnostic confirmation for diphtheria infection. In a series of 100 tests conducted in the division of laboratories and research in the Chicago Department of Health the results of virulence determination by the P.D. method were in accord with the routine animal test in 97 of 100 cases. We are at present engaged in an attempt to devise a simplified form of apparatus for the measurement of P.D. It is hoped that by using the electrical method it will be possible for a laboratory to make a virulence determination and report the result to the physician in a much shorter period of time than is now possible by the current guinea pig method.

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OPPOSING VIEWPOINTS IN THE SCHOOL VENTILATION CONTROVERSY*

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IT IS an interesting commentary on the importance of ventilation that two sections of the American Public Health Association should at an annual meeting join together for common discussion of this subject.

Ventilation has wide application—in churches, factories, meeting halls, mines, public buildings, railway coaches, restaurants, schools, stores, submarines, theaters—in fact all inclosures where people congregate in numbers.

The ventilation of school buildings is just one little corner of the whole ventilation problem. However, this corner has been the storm center of more controversy than any other section.

I shall try to portray to you in concise terms why school ventilation provokes controversy and to give you an insight into the opposing viewpoints.

About fifty years ago, Pettenkofer, in Germany, and Parkes, in England, put forward the idea that to safeguard people from being harmed by their own exhalations when congregating indoors, there should be a minimum standard of air change amounting to 30 cubic feet per minute per person. Such an air change would prevent the carbon dioxide from accumulating above 7 parts per 10,000. It was not that carbon dioxide itself was harmful, but it was felt that the carbon dioxide was a good index of the amount of other substances in the air which were dangerous to health.

This 30 cubic foot standard was definite, was suitable for engineering calcu-

* Read at the Joint Session of Industrial Hygiene and Sanitary Engineering Sections of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 12, 1926.

lations, and by the beginning of the present century it began to creep into state laws and regulations governing the ventilation of schools and factories. This standard could only be guaranteed at all times through the use of mechanical blowers; hence the 30 cubic foot provision indirectly prescribed mechanical ventilation.

It was not long before the school teachers discovered that the 30 cubic foot standard did not necessarily produce comfort. In fact, this standard could be doubled without necessarily producing comfort. There were many criticisms of the mechanically ventilated classroom and the teachers were not backward in expressing their views. The rooms were hot and stuffy, draughty and dry and lacked freshness. The teachers opened the windows to cool off; the janitor ordered them shut; teachers began getting madder and madder over these repressive regulations, and the janitors got gruffer and gruffer.

Meanwhile physiologists in Germany, England and the United States had been emphasizing since 1880 that it is not the chemical purity of the air which makes for comfort, but cool temperature. The main thing is, to prevent heat stagnation and not to worry even if the air flow standard is cut in two.

Mechanical ventilation was found unessential to comfort. In fact it was less comfortable than window gravity ventilation which the law prohibited.

The final stroke which caused the American Public Health Association to burst forth at its annual meeting in St. Louis last year with a stinging resolution* against arbitrary state laws on school ventilation, was a serious proposal on the part of certain people in St. Louis to compel the closing of the windows in the open air schools and the treating of the air with ozone. This was the last straw. The tuberculosis association drew the line at this and the public health fraternity went definitely on record in protest against the unwarranted invasion of the ventilating engineer into the field of public health and medicine.

That is the setting of the stage to-day.

I feel that I can give you a closer insight into the question by actually depicting a scene from the drama, "School Ventilation." The scene is laid in the lounging room of a city club. There are two characters, the "Window-Gravity Advocate" and the "Mechanical Ventilation Advocate." The time is the present.

Now, mind you, I am not saying these things. I am simply illustrating a typical conversation between these two characters.

The Window-Gravity Advocate is on the left side of the stage, the Mechanical Ventilation Advocate on the right.

The scene opens with the Window-Gravity Advocate speaking.

The Window-Gravity Advocate (with vehemence)—I tell you that the existing ventilation laws are tyrannical. They prohibit window gravity ventilation. Why not prohibit open air schools? Why not compel tuberculosis sanatoria to close their windows and treat their patients with 30 cubic feet? As it is now, a child has to be sick to get into an open window room.

The Mechanical Ventilation Advocate (soothingly)—I am not in sympathy with tyrannical laws, but you must think twice before repealing ventilation laws. It was a long, hard pull to get those laws enacted. There has been a lot of improvement under those laws. Better not repeal them until you are dead sure that you can specify something better.

The advantage of mechanical ventilation is that it is subject to control. Window ventilation is at the mercy of the weather.

The Window-Gravity Advocate (warming to the fray)—I am not so sure about this control business. Window ventilation is controllable. The direct heat is controlled either automatically or manually. Air flow is controlled by the windows. And the power to control it is in the hands of the people affected. If fan

*A. J. P. H., 15, 12:1101 (Dec.), 1925. Resolution on Schoolroom Ventilation.

ventilation is subject to so much better control why all the complaints against overheating? Why all the opened windows in fan ventilated rooms? Theoretically fan ventilation may be under control. Quite so, but what good is the control if it fails to make schoolrooms comfortable.

The Mechanical Ventilation Advocate (with finality)—It is unfair to expect a busy teacher to watch thermometers and open and close windows. Mechanical ventilation relieves her of all this worry. Window ventilation subjects the children in the outside aisle to icy draughts from the windows or extreme heat from the oversize radiators.

The Window-Gravity Advocate (with asperity)—Now, see here, you are not fair to window-gravity ventilation. You talk just like a recent article written by a former president of the American Society of Heating and Ventilating Engineers. Look at this picture with the article (holds picture aloft). It is supposed to represent the type of window ventilation advocated by the American Public Health Association and the New York State Commission on Ventilation. There are no less than six misrepresentations visible in the picture.

This window is open at the top.

The Ventilation Commission Report specifically taboos the top opening (see page 522).

This window is closed at the bottom.

The Report specifies opening at the bottom.

There is no deflector at the window.

The Report specifies a deflector.

There is no shield in front of the radiator.

The Report recommends such a shield.

The picture does not show automatic heat control, nor modulated hand control, nor a conveniently located radiator valve.

And yet the Report specifies these things.

Incidentally when you picture a schoolroom, never have the light coming in on the right side of the pupils and further always put some shades on the windows.

The title of this article is "Half Knowledge is Dangerous in Ventilation." I must confess that this title is superbly appropriate.

The Mechanical Ventilation Advocate (superciliously)—Well, I don't know that the engineers have any particular monopoly on exaggeration or misstatement. It seems to me I have read expressions about "canned air" and "God's free air." You must realize that air is not free even when it comes in the windows. It costs money to move air, whether you move it by heat or by electricity.

The Window-Gravity Advocate (disdainfully)—Costs money? Don't talk about cost.

Window-gravity ventilation is not only less costly to install but is cheaper to operate. McLure has shown that mechanical ventilation and indirect heating with individual ducts costs 50 per cent more than window-gravity ventilation to install. Furthermore, even after you install it, experience shows that mechanical ventilation is not operated outside the heating season in the majority of cities. In many instances it is not operated even during the heating season except on days of extreme cold. In some instances ventilation systems are not operated at all, and have not been for several years. The reason they have not been operated is the high cost of operation. I am told that for every four pounds of coal burned, only one is for heat, the other three for ventilating on the 30 cubic foot basis.

The Mechanical Ventilation Advocate (searchingly)—In advocating window-gravity ventilation the New York Commission report recommends extra radiation, larger exhaust ducts, larger space allowance per pupil and suggests that the leeward exposure of the building is not suitable for window ventilation.

How do you figure that window ventilation is less expensive when the building must be enlarged, the radiation increased, the vent ducts more than doubled, and all the rooms on one side of the building tabooed for school use?

(Triumphantly) Look here! Did you ever design or build a ventilating system?

The Window-Gravity Advocate (somewhat abashed)—No, I can't say that I ever did, (with rising courage) but I have spent considerable time inside of school buildings.

Were you ever in one of the newer types of window-gravity schools? Did you ever sit down in one of these schoolrooms for an hour or more and actually experience the sensation of window-gravity ventilation?

The Mechanical Ventilation Advocate (hesitatingly)—No, I don't know that I have.

The Window-Gravity Advocate (sarcastically)—Don't you think you could discuss the matter with better grace if you had a little more knowledge of the life within a schoolroom?

The New York State Commission found that there was less respiratory disease in window ventilated rooms.

The Mechanical Ventilation Advocate (skeptically)—That doesn't convince me. The buildings that were chosen to represent mechanical

ventilation were old models. Besides a number of years ago the Detroit Board of Education found that the window ventilated room was impossible and had more disease than the mechanically ventilated room.

The Window-Gravity Advocate (aggressively)—The Detroit study is not at all contradictory. The window rooms in the Detroit study were not window-gravity ventilation. In the first place, the gravity exhaust ducts were closed, the windows were covered full length with muslin screens and the rooms had a great excess of direct radiation all on one thermostat. The result of the Detroit study is exactly what one would expect and is confirmed by studies on this type of room by the New York Commission.

Another thing, the schools in the New York study were not all old schools. They were representative of the time and three buildings were of the very latest pattern and had just been opened.

It seems to me you always have excuses for the mechanically ventilated buildings that are studied.

The perfect building is always the one that you, but no one else, has visited.

The Mechanical Ventilation Advocate (splashing about wildly)—The trouble with the New York Commission is that they took a lot of data based on opinion. They had no scientific basis. They had no readings or facts to support their opinions.

The Window-Gravity Advocate (with heat, holding up report of New York Ventilation Commission)—Here are 200 pages of readings and facts! Why not look at them?

The Mechanical Ventilation Advocate (stubbornly)—The work was not scientific.

The Window-Gravity Advocate (patronizingly, yet with earnestness)—And yet 5 of the 6 members of the New York Commission are listed in *American Men of Science*, whereas I failed to find a single name representing the prominent critics of window ventilation.

(In best scientific manner) Is there not much more probability of attacking a problem without bias when 6 men are chosen from 6 different professional fields—education, medicine, chemical biology, public health, ventilating engineering, and physiology—and each representative is eminent in his field? Is not this better than a committee of all physicians, or all engineers?

The Mechanical Ventilation Advocate (with dying gasp)—H'm—you've got to be practical as well as scientific.

The Window-Gravity Advocate (defeated, yet still hopeful)—Well—what shall we do about it?

The Mechanical Ventilation Advocate—Er-r-r (as one inspired) we might refer it to a committee.

The Window-Gravity Advocate (thrilled with anticipation)—By Jove—that's a happy solution. Shake.

CURTAIN

And so, ladies and gentlemen, here we are.

MODEL HEALTH CENTER IN NEW YORK CITY

A model $250,000 health center for fighting sickness and death in New York's congested East Side district will be established in November by the Milbank Memorial Fund.

The new health center will be opened in a five-story brick building in the Bellevue-Yorkville Center district, and will house tuberculosis, social hygiene, dental and infant welfare clinics. The headquarters of the Community Health Center will be located there. The council in charge serves as the operating agency for the metropolitan health demonstration and it is composed of the New York City Department of Health and various other official and voluntary agencies, a number of which will have district offices in the building.

Rural Cattaraugus County and the city of Syracuse are included in the group known as the New York Health Demonstrations.

In making the announcement, John A. Kingsbury, secretary of the Milbank Memorial Fund, said:

"Under the leadership of their local health authorities these communities seek to indicate the more vital problems confronting modern rural, urban and metropolitan communities in forwarding the general health of their populations, and to single out those phases of such problems which will more readily yield to control."

DEVELOPMENT OF STATISTICS OF MARRIAGE AND DIVORCE IN NEW YORK STATE*

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THE DEVELOPMENT of official vital statistics in this country has been a slow and laborious process. The growth has been hampered primarily by the fact that in our system of government before any progress could be made it was necessary to convince our representative bodies that a complete and accurate compilation of numerical facts regarding the vital processes of the people is a necessary health measure. Matters of public health, taking this term in a comprehensive sense, are, of course, outside the experience of most of the members of our state legislatures. Their interests usually lie in the field of more tangible matters—roads, bridges, buildings, salaries and pensions, commercial and industrial organizations, and such matters. Even at present, official vital statistics must fight to retain positions won and in some parts of the country it is still obliged to call upon time-worn, unquestioned arguments to gain mere recognition as an essential state function.

In the state of New York, the need for the registration of deaths was recognized comparatively early. The struggle for the timely registration of all births was considerably more difficult and met with greater indifference and it was only slightly more than a decade ago that this aim was achieved. The other two elements of vital statistics—marriages and divorces—fall within the field of domestic relations and here, in addition to the general inertia which the efforts to establish registration of births and deaths had to encounter, they had also to face a widespread reluctance to permit any state "interference" with the private lives of its citizens.

EVOLUTION OF MARRIAGE STATISTICS

To trace the development of marriage statistics in the state of New York we must consider the history of the system of registration. Its beginnings in this state were, of course, not spontaneous, but, as in the case of most of our legislation, it had its roots in the various mother countries of Europe. The institution of banns may be taken as the crude progenitor of modern registration. This custom seems to have made its first appearance in France, probably as early as the Fifth Century. From France it made its way into the other countries of Europe. In the year 1538 parish registers of births, deaths, and marriages were introduced in England. The first article of the Injunctions, issued by Thomas Cromwell, regent under Henry VIII, provided that:

> You and every present vicar or curate within this diocese for every church keep one book or register wherein he shall write the date and year of every wedding, christening, and burial made within your parish for your time and so every man succeeding you likewise and also there insert every person's name who shall be so wedded, christened, and buried.

The orders of Henry VIII were modified by the succeeding rulers, but with the exception of the brief period under the Commonwealth, no material changes were

* Read before the Vital Statistics Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, October 11, 1926.

made in the method of registration until the early part of the Nineteenth Century, when the civil marriage law of 1836 was enacted and a new system of registration created.[1]

STATISTICS IN NEW YORK STATE

In the early colonial period, when New York was still New Netherlands, the laws of Holland were largely in operation. The publication of banns was ordered in 1654. Four years later the ordinance was amended by requiring the performance of a marriage within a month after the third publication of the banns.[2]

In New Netherlands "legally, so far as the evidence at hand shows, the covenant had to be solemnized by a minister with religious rites."[1] In 1664 the colony passed into the hands of the Duke of York. A code of laws embodying the existing legislation of old England, with modifications, was then introduced. The code of the Duke of York, promulgated in 1665, established the principle of optional civil marriage and directed that:

> The minister or town clerk of every parish shall well and truly and plainly record all births, marriages, and burials . . . in a book to be provided by the church warden for that purpose.

It also provided a penalty for failure to record a birth, marriage, or death with a minister or town clerk and a penalty upon the latter for failure to make an entry of these events in the record book. An ordinance, passed October 23, 1684, required the filing of marriage certificates in the office of the registrar of the county.[3]

Between 1684 and the American Revolution, as regards the subject of marriage, "the law book is a complete blank."[1] For half a century after the Revolution the registration of marriages was still governed primarily by the common law of England. It was only in 1829 that marriage was first mentioned in the laws of the state. The revisers of the statutes of 1829–1835 have the following to say about the situation:

> While almost every state in the Union . . . has carefully provided for (the) due solemnization and proof (of marriage), this state has never attempted to regulate, by statute, any one of these particulars. We have several satisfactory provisions concerning *divorces*, but as to every other branch of the subject we are left to the protection of the common law. . . . Much of the English law on the subject is derived from the canonical law . . .; but it has lately been decided (Hopkins' Rep. 557) that the ecclesiastical law has never been adopted in this State.[4]

The statutes of 1829 specified that:

> Whenever a marriage shall have been solemnized within this state . . . the minister or magistrate by whom the marriage was solemnized, shall furnish *on request*,* to either party, a certificate thereof, specifying
>
> 1. The names, ages, and places of residence of the parties married, and their trade, profession or occupation
> 2. The name and place of residence of the attesting witness or witnesses, and
> 3. The time and place of such marriage
>
> The certificate shall also state, that after due inquiry made, there appeared no lawful impediment to such marriage; and it shall be signed by the person making it.[5]

Another section of the same law provides that a certificate "*if* * presented to the clerk of the city or town where either of the parties reside . . . shall be filed by such clerk and shall be entered in a book to be provided by him." Thus, the issuance of such certificates and their filing were optional.

The registration of marriages remained a local matter until 1880, when a state board of health was established. The act establishing this board states, among other matters, that it shall "have the general supervision of the state system of registration of births, marriages, and deaths . . ."[6] The secretary of the board of health was made superintendent of registration of vital statistics. The laws of 1885 made it the duty of "the groom at every marriage or the clergyman or magistrate performing the cere-

* Italics by writer.

mony to secure the return of the record of such . . . marriage to the board of health." After registration, the local boards of health were to forward these records promptly to the state bureau of vital statistics. It stated further that:

> If in any place . . . the state board of health ascertains that the said registration of . . . marriages . . . is not completely and well made, said state board shall notify the local board of health in such place that within one month from the date of notice, said defects and neglect in the records must be amended and prevented.

If the defects were not corrected within the time specified the state board of health could take charge of the records and enforce the laws and regulations.[7] Penalties were provided in case of failure on the part of any board or individual to carry out the provisions of the law. Thus, in 1885 we have a complete system of mandatory, and not optional, registration of marriages.

The laws of 1901 created a state department of health in charge of one commissioner and placed the bureau of vital statistics under his supervision.[8] In 1907 a law was passed providing for marriage licenses. This law also changed the method of reporting by introducing county clerks as intermediaries: the town and city clerks were required to file the originals of all marriage documents with the county clerks monthly while the latter had to forward these documents to the state department of health quarterly;[9] the section referring to the local boards of health was, therefore, repealed. In 1913, under the general system of reorganization of the department a division of vital statistics was created with a director to be appointed by the commissioner, but no other changes were introduced.[10]

Prior to 1908 the cities of Albany, Buffalo, New York and Yonkers were excluded from the provisions of the law. From 1908 to 1915 they were all included, but New York City was required to send only copies of the marriage documents. In 1915 New York City was once more excluded and has since remained outside the state system. Figures for New York City now shown in our vital statistics reports of marriages as well as births and deaths are received in tabular form from its bureau of records.

The method of registration provided for in the laws of 1907 did not function very satisfactorily, as is always the case when the contact between local officials and the central office is indirect. The various marriage documents were often filed late, many of them reaching the state office a year, at times two years after the date of the marriage.

Several efforts to simplify the system of reporting have been made but all failed of passage until 1926, when the law was amended eliminating the county clerks as intermediaries and providing that the marriage documents be sent each month by the town and city clerks directly to the division of vital statistics and copies filed with the county clerks. The registration of marriages in this state has therefore been put on the same basis as the registration of births and deaths and there is every reason to hope that henceforth marriage returns will be as complete and as timely as are the returns of births and deaths.

PRESENT REPORTING IN ALL STATES

New York is now 1 of 8 states in which marriage documents are filed monthly by local officials, the other states being Connecticut, Maine, New Hampshire, New Jersey, Rhode Island, Utah, and Wisconsin. It may be worth while to summarize the corresponding information for the other states of the Union, practically all of which was obtained through replies to a questionnaire* sent by the division of vital statistics to all state registrars. In 6 states, Arkansas, California, Oregon, South Dakota, Utah, West Virginia, re-

* Information for Alabama, Delaware, and Florida taken from *American Marriage Laws*, by Hall and Brooke, New York, Russell Sage Foundation, 1919.

turns are made monthly by county officials. In 2 states, Alabama and Kansas, returns are made monthly by probate judges. In Maryland, monthly returns are made by the clerk of the circuit court. In Idaho and Wisconsin, returns are made quarterly by county officials and in 1 state, Delaware, by the local registrars. In 6 states, Iowa, Louisiana, Massachusetts, Nebraska, Pennsylvania, and Virginia, returns are made annually by local or county officials. In North Dakota, returns are made by the county judges, but the time of reporting was not shown in the reply. At the time this inquiry was made (October, 1925), the remaining 21 states had no state record.

In Arkansas, California, Delaware, Kansas, New York, North Dakota, and Wisconsin the original documents are sent to the central office. In Maine, Maryland, Nebraska, and New Hampshire the procedure was not clearly stated. In the other states, copies were filed in the state office.

CENTRAL SYSTEM IN NEW YORK STATE

Having described in detail the evolution of the basic structure of statistics of marriages—the method of registration—the rest of the story can be told briefly. While the provision for voluntary local recording of marriages was made as early as 1829, it was more than half a century later that the statutes of 1880 provided "that there shall be a central or state system of vital statistics" and that the state should "enforce compliance with the directory language of the statutes" for the registration of such records.

Totals of marriages were shown for the first time in the annual report of the state board of health for 1887. The report for 1901 summarized the marriage returns for the preceding five years and also presented the figures for the year by months. In 1905 marriage returns for the preceding year were shown by counties and their subdivisions. The report for 1907 gave the number of marriages and marriage rates for 1885–1907. The reports on vital statistics for the following years included totals for the state and, occasionally, for its various sections.*

It was only in 1919 that the first comprehensive tabulation of marriage returns in this state was prepared by my predecessor, Dr. Otto R. Eichel.[13] This was followed by statistics for the single year 1920, incorporated in the report of the Division of Vital Statistics for the year 1921.[14] We are at present preparing the statistics for 1921–1924, which we hope to publish in a separate volume in the near future. This report is made up of twelve tables correlating all of the essential facts shown on the marriage documents together with an introductory analysis of the data for the entire 9-year period, 1916–1924.

DIVORCE STATISTICS

Little is to be said about statistics of divorce in this state. New York is 1 of 33 states (including South Carolina, where no divorces are granted) which does not require the registration of divorces, and without a state record there can be no state statistics. Only 15 states make some provision for such records: Arkansas, Connecticut, Iowa, Louisiana, Maine, Maryland, Massachusetts, South Dakota, Nebraska, Oregon, Vermont, New Hampshire, Rhode Island, Virginia, and Wisconsin.†

The importance of the tabulation and analysis of all facts relating to divorces was recognized officially as early as 1887. As a result of petitions on the part of representative citizens throughout the country an act of Congress, approved March 3, 1887, authorized the Commissioner of Labor "to collect and report to Congress the statistics of and relating to marriage and divorce in the several states and territories and in the District of Columbia."[11] The National Congress on

* For detailed marriage statistics prior to 1906 see references 11 and 12.

† For New York divorce statistics see references 11 and 12.

Uniform Divorce Laws, at its meeting in Washington, February 19–23, 1906, adopted the following resolution:

> WHEREAS, the annual collection and publication of marriage and divorce statistics of the several states would materially aid in the study and solution of the divorce problem, and
> WHEREAS, only eleven of the states now provide for such collection and publication; therefore, be it
> RESOLVED, That this Congress adopt a draft of a proposed general law for the annual collection and publication of such statistics, which law shall be reported by the Secretary of this Congress to the governors and respective delegates to this Congress of all the states and territories of the United States for submission to the legislatures thereof, with the object of securing as nearly as possible uniform statutes upon the subject.[15]

The Congress also prepared a draft of an act for the collection of statistics relating to divorce proceedings. This draft contained, altogether, 23 provisions—the most important among them being:

- The record number
- Full names of plaintiff and defendant
- Age
- Color and occupation of each
- Date and place of marriage
- Residence of each at time of marriage
- Date of separation
- Alleged cause or causes for annulment or divorce
- Date of decree
- Nature of decree
- Final disposition of the case
- Number of children by the marriage
- Number of children affected by the decree

The proposed bill provided fees for making returns, penalties for failure to make returns, and suggested that state boards of health publish these returns together with the necessary analyses.

The Division of Vital Statistics of the New York State Department of Health has made repeated efforts in the last few years to obtain legislation for the registration of divorces, but, so far, without success. In general, proposals of legislation dealing with domestic relations is, *per se*, a subject unwelcome to legislators. They feel that domestic relations are primarily a personal matter with which the state has no legitimate concern.

In the matter of divorces, the situation is, therefore, very delicate. Here we meet not only indifference, but outspoken opposition which is evidently based on a childish faith that refusal to recognize unpleasant facts will exorcise them out of existence. And thus, while New York has an excellent system of statistics of births, deaths and marriages, it has so far failed to see the need of state records of divorces. Another attempt to secure legislative action for such registration will be made next winter and this time, because of the cumulative weight of the efforts of the last few years, with reasonable hope of success.

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REGIONAL PLANNING IN RELATION TO PUBLIC HEALTH*

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A REGION may be described as an area in which there is a family of communities having closely related physical, economic and social problems. It may be a metropolitan region, or a mining region or an agricultural region. New York and Buffalo are centers of metropolitan regions in which the mother city is far from being an economic or social unit, however dominant it may be in size and influence.

REGIONAL PLANNING

Regional planning is not a new form of planning of physical conditions, substituted for what hitherto has been known as city or town planning. The need of it has grown out of the experience in preparing and developing city and town planning schemes, because it has come to be known that modern cities and towns are not self-contained units but are the centers of industrial and social growth which extends to wide areas beyond their political boundaries.

In making a plan for a region we endeavor to set forth in broad outline the probable lines of future growth, in accordance with our ideas of what are the right directions and what are sound economic and social standards or principles.

One of the purposes of a regional plan is to stimulate the activity of cities, towns and villages in preparing and coördinating plans for their areas.

Under present conditions of government, regional plans are prepared by advisory bodies, comprising in some cases, as in Buffalo region, joint committees of the constituent local authorities. The application of such plans must depend on their being accepted by these authorities and incorporated in local plans prepared by them in conformity with state enabling acts. Regional planning, therefore, is a first step in the preparation of city, town or village plans. It is a necessary step because of the need of securing a unified pattern of growth, in respect to transportation, utilization of land, and control of land development and public health, in a combination of related urban and rural communities. One has only to mention the problem of sewage disposal and its relation to water supply to indicate one of many directions in which more unity and coördination are needed in the planning of urban areas.

Regional planning has the same object as city planning, namely, to secure health, order, safety, convenience, and general welfare, in connection with the physical growth of communities. Health comes first in order of importance, as an object of planning schemes, in state enabling acts, in the literature of the Advisory Committee on City Planning and Zoning of the U. S. Department of Commerce, and in the application of the police power to the control of the uses of property by the courts. In the British Town Planning Act, the general object is stated as being to secure proper sanitary conditions, amenity, and convenience, in connection with the development of land.

* Read before the Public Health Engineering Section of the American Public Health Association at the Fifty-fifth Annual Meeting at Buffalo, N. Y., October 14, 1926.

The British Act is administered by the Ministry of Health and was primarily designed to secure healthy housing conditions. Canadian town planning legislation has followed along the same lines.

PUBLIC HEALTH FEATURES

It has to be admitted that the most popular features in regional and city plans, among those most able to influence their application, are not those features which relate directly to public health or social amelioration, such as the prevention of unsanitary and crowded housing conditions. Groups of citizens who are primarily interested in public health measures do not show the same enthusiasm for their cause, so far as it can be promoted through city planning, as do groups of those who are interested in creating and maintaining real estate values or in creating the "City Beautiful." When the primary aim of city planning is to assist real estate speculation, or to create costly civic centers and ostentatious architectural improvements, it may, in either case, conflict with the needs of the community in regard to health. Land speculation is one of the causes of unhealthy civic growth, and where city planning is designed to make this speculation more profitable it must aid in producing unwholesome conditions. In the ancient cities of Greece and Rome monumental architecture and magnificent processional ways were masks that hid the slums of the poor, and the same is true of many modern cities.

Profitable real estate development and a high degree of real beauty in cities can be attained without injury to public health; and, on the other hand, whatever will promote adequate and reasonable standards of health will add to land values in the aggregate and provide the only sound foundations for beauty in structural growth.

But it is difficult to arouse interest in this vitally important phase of urban development. Even in a new country like Canada, where the health of the people is the resource that needs most to be protected and developed, little enthusiasm can be aroused to proposals of planning cities if they seek to curtail the activities of real estate speculators, in the interest of the future health of the community,

In regional and city plans we seek to lay down the physical foundations for a healthier pattern of community growth. One description is that they are the means of determining the legal quality of the land, for the purpose of securing the objects the planners have in view, so far as this quality can be measured and placed on maps. Another point of view is that all economic and social problems in the city that are the consequence of bad physical environment can be solved by planning with proper foresight. The plan, however, goes further than mere map making or picture making; but its achievements in arresting or preventing unsound conditions of community growth can never rise above the level of intelligence of the communities or their governments. By the application of expert knowledge, more foresight, and education of the public to know and demand good standards of health, it can influence the growth of communities in those directions which will enable them: first, to avoid unnecessary destruction of human life and energy; second, to prevent the recurrence of those abuses of private interest in property which do injury to the public well-being; and third, to help in destroying the economic fallacies which underlie a great deal of the present haphazard growth of cities.

Every part of a regional plan has a relation to public health. The determination of areas for different uses, such as industry, business and residence, has to be based primarily on health considerations. The restriction of heights and density of buildings is as important in securing healthier working and living conditions as it is in promoting more efficiency for industry and business and

relieving traffic congestion. Health questions are involved in connection with every form of transportation. Then there are important problems requiring regional treatment concerning:

Water supply and sewage disposal
Housing in the central and suburban areas, from the points of view of land development and sanitation
Parks, playgrounds and other open areas
Placing and surroundings of schools
Refuse collection and disposal
Placing and planning of correctional and welfare institutions

Because of their unprecedented size, modern cities cannot function properly without collaboration with neighboring communities in matters relating to sanitation, water supply and other things which affect the public health.

BUFFALO METROPOLITAN REGION

The City of Buffalo is the center of one of the most important metropolitan regions on the American Continent, and it is fortunate that active steps have been taken to promote a plan for this region. The concentration of transportation facilities and power supply together form the chief basis for the development of industrial growth and urban expansion in modern times. Where there is a great focal point of transportation by land and water in combination with the development of energy you have the conditions necessary to stabilize existing cities and to promote their future growth. Improvements in transportation and power development will make Buffalo continue to grow as a center of industry and assure its future prosperity in competition with other areas not so highly favored in respect to these services.

It is only by comprehensive planning on a wide regional basis that the best utilization of the land can be understood and promoted. What Buffalo needs to concern itself about is not the quantity but the quality of new growth, for it may grow weaker as it increases in size.

The Buffalo region is part of a still greater region which is international in scope and comprises a territory which stretches twenty miles on either side of the Niagara River and for a length of over thirty miles between Lake Erie and Lake Ontario. The Canadian area, including two counties and several townships, should be planned under the leadership of the Ontario Government, and in collaboration with the group of municipalities in New York State which have combined to make a plan.

The Niagara Frontier Regional Planning Board has made preliminary surveys and is developing a plan of new communicating highways, rapid transit facilities, parks and parkways, regional zoning, water supply and sewage disposal systems, and harbor and canal improvements. The region comprises Niagara and Erie Counties, the six cities of Buffalo, Niagara Falls, North Tonawanda, Tonawanda, Lackawanna and Lockport, and 32 villages. The two counties had a population in 1925 of 827,053. The densities of population vary from some hundreds of persons per acre in parts of Buffalo, to 2.7 per acre in one of the urban municipalities in the environs. It is estimated that the population of the region will double itself in the next thirty years.

A regional plan for this area will deal with the overlapping and interrelated problems of the whole territory, urban and rural, as the basis for the more detailed city, town and village plans. The whole problem of communications by waterway, railway and highway, and the classification of the uses of land for industry, business, residence, cultivation and parks, will come within the scope of this plan.

WATER SUPPLY AND SEWAGE DISPOSAL

Of special importance to the group of communities in the region are the questions of water supply and sewage disposal. The sources of water supply are the lakes and the Niagara River. The pollution of the Niagara River has been

a matter of consideration of the International Joint Commission and it would appear from reports which have been made that early attention should be given to this evil. With the completion of the Welland Ship Canal and the further development of industry, the pollution will be increased. The dependence of these communities on these lake and river waters for their water supply makes this a problem of urgent importance. It is quite evident that it is impossible to deal with it without regional and even international treatment.

HOUSING AND PARKS

As in all industrial communities, there are defective housing and sanitary conditions in the Buffalo Region. The great shortage in houses, which existed immediately after the war, has to some extent been met, but removal of defects in standards of dwellings, and sanitary conditions in the poorer parts of the city have made little progress.

All interested in public health know the importance of ample areas for recreation. Buffalo has an admirable system of parks, but the smaller communities in the region continue to be deficient in this respect. It might almost be stated that the smaller cities and towns have no parks. For instance, one city with a population of over 20,000 had only one park of five acres in a total area of seven square miles, in 1919. Proposals have been made for creating new reservations and parkways, and there has been a continual fight to preserve the natural beauties of the Niagara River and Falls. The State of New York made a splendid contribution to the park system when it spent a million and a half in acquiring the New York Reservation, including Goat Island, Green Island and Prospect Park in 1885, but one of the greatest needs of the Region is in the provision of more recreation spaces near to the homes of the inhabitants who require athletic fields and playgrounds, as a measure of public health.

THE REGIONAL PLAN

The plan will contain proposals for a system of open areas designed to give the population ample and convenient facilities for healthy recreation and incidentally contributing to their safety at a time when the motor car is destroying so much human life. The plan should also indicate the principles on which sites for schools should be selected, with a view to the health and safety of the children. The surroundings of the schools, the amount of space required for recreation in their immediate neighborhood, the location of schools in relation to the means of approach, and other questions, need to be the subject of more planning in relation to the general development of the Region.

We find in the plan of the New York Region, that our proposals have to deal with problems of the wrong utilization of water frontage for refuse disposal and with the relocation of correctional and welfare institutions. In these matters, we are collaborating with such bodies as the Public Health Committee of the New York Academy of Medicine, whose conclusions we have adopted in recommendations we have made in regard to the placing of municipal hospitals.

The development of regional planning has been greatly stimulated in the last few years as a result of traffic congestion and of the inability of cities to solve their problems of communication within their own areas. Some of the most important regional plans in the past have, however, related to public health questions. For instance, the Metropolitan District Commission of Boston has for many years operated a regional system of water supply to 10 cities and 9 towns. The water district has an area of 175 square miles, and a population of over 1,300,000. The commission has also built and supervised sewers in 14 cities and 13 towns.

Large districts have been created in other places for the supply of water and the control of sewage disposal, but these

matters cannot be dealt with effectively merely by widening the area for this purpose alone. Water supply and sanitation have to be comprehensively treated in relation to all the problems of building growth, character and functions. They should be planned and developed in harmony with the whole physical plan of the communities that require these facilities.

UNBALANCED DEVELOPMENT

Those who realize the importance of maintaining the public health, either from a humanitarian or an economic point of view, will continue to fight a losing battle against the physical and social diseases of the city, unless more adequate measures are taken to prevent the causes of haphazard growth and unbalanced development. Once the evils of congestion in cities become established, it is almost impossible to eradicate them and it is inevitable that their continuance will in time produce decay. To enable us to apply more constructive means of prevention, we must be prepared to deal with the primary causes of this congestion and use more scientific methods in the planning and laying out of cities and their environs.

So far we have been dealing with matters regarding which there is little difference of opinion, either as to the need of improvement or as to the methods necessary to bring it about. One thing alone stands in the way of all communities in developing improved sanitary and housing conditions, adequate open areas for recreation, less crowded transit and traffic facilities, and other measures needed to promote higher standards of public health. This one thing is the cost of making the needed improvements under present conditions of haphazard growth. Much of what has happened could have been prevented at little cost, and a great deal of money has been wasted in doing things which would have been better left undone. Hence the mounting taxation of growing cities. Cities have had to meet the great expense of remedying evils that should never have been permitted to be established, and are faced with great liabilities in the future in order to maintain their health and efficiency. Knowledge and experience of past mistakes should guide them into wiser courses in the future.

UNDERLYING CAUSE OF DEFECTIVE URBAN GROWTH

What is really and fundamentally wrong in the development of cities is the lack of adequate control of the systems of land development. The uneven distribution of the population resulting in congestion in central areas and extravagantly scattered development in the environs of cities has been artificially promoted by this defective system. Wrongly balanced development, increasing separation of the home from the place of occupation, congested means of transit, crowded traffic ways, absence of proper scale between buildings and spaces surrounding them, and absence of ample open spaces for recreation are consequences of a haphazard system of land and building development. Everybody recognizes that cities grow unevenly and that this does harm. Few seem to appreciate that this is an artificially created condition and is therefore avoidable.

If the primary cause of congestion is not the scarcity of land in any one place, but the lack of regard for proper scale in its development, we can apply concrete preventive measures to secure this scale in future developments. We cannot obtain this scale by changing the pattern of transit and street facilities, or by passing a zoning law to limit the height and density of buildings as separate measures. We can only obtain it by proper adjustment of the street system to the building development and *vice versa*.

If, by a plan, we could secure proper scale between all buildings and their surroundings, there would be no congestion.

HIGH BUILDINGS

People wrongly condemn high buildings, whereas the thing to be condemned is the lack of space about the buildings, of whatever height. Because this is the real defect, we have not yet begun to realize what the effect of high buildings will be on the future city. The individual high building may be a thing of beauty and health; a group of high buildings may cause such congestion and such a decrease of sunlight, diffused light and air circulation within the crowded buildings and on the pavements and atmosphere between the buildings, that serious results will accrue to the health of those who live or work in them.

Dr. W. A. Evans, in a statement on "Public Health in Relation to High Buildings," refers to the effect of high buildings in preventing the sterilization of the lower stretches of the atmosphere and in increasing the respiratory diseases. Numerous textbooks on hygiene refer to the difficulty of controlling the pneumonia group of diseases under modern conditions of city work and life. Dr. Russell of Glasgow says, "The closer people live to one another, the shorter their lives are."

In spite of these statements, New York appears to be a much healthier place to live in than many smaller cities, and some of the rural districts where families are isolated on poor land. Bad development of land may produce unhealthy conditions in the country as well as in the city.

We are not yet in a position to say what will be the effect of business and residential skyscrapers in New York on the health of the inhabitants. In spite of having the largest number of skyscrapers of any city area, Manhattan still has an average no greater than 4.9 stories. In New York we will only begin to know the effect of high buildings on health and traffic, when they cover much larger areas than at present. The relative degree of congestion in a city of high buildings as compared to one of low buildings will only be realized when the average height and degree of aggregation rises above anything that has hitherto prevailed. The average of Manhattan is still not much, if any, greater than Berlin or the central parts of London, in regard to heights and bulks of buildings.

Charles B. Ball, Chief Sanitary Inspector of Chicago, says that buildings which exceed in height one and one-half times the width of the street on which they are built, by reason of their proximity to each other, reduce to a marked degree, light and ventiliation at the street surface and in the rooms which they contain.

Both Dr. Evans and Mr. Ball agree on the effect of these conditions, not only in causing respiratory diseases but also in producing eye strain, nervousness and depression. If this be so, and if the position to-day is that we have not begun to feel the effects of the concentration of groups of high buildings, do we not need a constructive policy based on proper standards of public health to regulate the scale between buildings, and the spaces surrounding them?

We cannot stop congestion, however, by a scheme which limits itself to the congested area. A restriction on heights and bulks of buildings must take many forms in growing cities; in the central built-up areas, it will have to be a compromise with existing conditions; in the inner suburbs, it may have to include the absolute minimum of necessary standards of health; in the outer suburbs, it should impose restrictions that would prevent any future tendency to congestion or unhealthy conditions; and in the undeveloped areas in the outskirts, it should err on the side of spaciousness and go as far in restricting heights and densities as economic conditions will permit.

The effect of promoting more even development of land will not be to lessen land values; it will be to spread values over wider areas, so that what a few owners of property lose in the profits

of congestion will be small compared to what real estate owners, as a whole, will gain.

PLANNING FOR FUTURE GROWTH

We need to plan large regions to deal with the problem effectively because we have to deal simultaneously with the areas that are still undeveloped, and those that are overdeveloped. There is an abundance of space for healthy civic growth and we have to plan the future growth of cities so as to obtain the benefits of concentration, without congestion. The degree of concentration required for efficiency and public health is aided by even distribution and is as much destroyed by congestion as by the economically unsound scattering of isolated buildings over wide areas.

In new subdivisions, conditions are being created which to-day result in wasteful scattering of the population, and to-morrow, in congested suburbs. It is there that the greatest opportunities for preventive measures occur. In congested central areas, the cheaper dwellings have better sanitary conditions than in dwellings of a similar class in the suburbs, because anything else than good sanitation would make the overcrowding intolerable. In the outer suburbs, space is extravagantly used and because of this it is not practicable to provide durable buildings, or serve them with proper means of access, with sewers, or with the other equipment necessary to make healthy places of habitation. Because of land speculation, money has to be spent on bare land which should be spent on local improvements, or in building more durable homes. If those who develop and sell land in the suburbs were compelled to equip the land with the facilities necessary for purposes of healthy building use, there would be much less speculation, no unhealthy scattering of dwellings, and more balanced growth. When a piece of land is sold to a person for the purpose of erecting a home, it should be provided with some kind of paved street and sidewalk; it should have the water main laid down; and where economically possible, it should be provided with sewers. The responsibility for making this land fit to be built on should rest with the person developing it and selling it for that purpose. At present, that responsibility is transferred to the purchaser, who finally passes a large share of it on to the community, with the consequent waste in enormous mileage of streets, sewers and water main along the frontage of vacant lots and increased burden of taxation on the community.

This matter is of interest in connection with public health, not merely because the extravagance of space in these suburbs makes it uneconomical to provide sanitary services, and therefore prevents provision being made for them, but also because enormous sums of money are used for gambling in land which could be diverted into constructive development.

In the last half century great progress has been made in sanitary science and in the improvement of public health, but no progress has been made in developing a more healthy and efficient pattern of growth for cities. Good effects obtained in one direction have to be set against bad effects in another direction.

To-day the larger cities of the country are faced with the prospect of doubling their populations in the next thirty years, knowing that as they grow their social obligations and costs increase. They are already burdened with heavy taxation and in addition are faced with demands for large expenditures, merely to take care of existing public health, transit and traffic needs. They must increase their taxes, fail to meet these necessary demands, or lessen the wasteful expenditures incident to distorted and uneven growth.

To accomplish this last the heights and densities of buildings in central areas must be adjusted to conform to the existing street system in such a way as to permit ample provision of space for free

movement, light, air, and sunlight. The present zoning laws are utterly inadequate for this purpose. In new areas the New York State Enabling Act for control of platting new subdivisions should be adopted and enforced. Owners of land should be required to assume the responsibility for providing more of the local improvements which give added value to their property. The use of land for building purposes should be regulated on the basis of securing proper standards of health as a prerequisite of its development.

The constructive reforms needed in metropolitan areas can only be secured by joint action of the local authorities in preparing, first a regional plan and second, a series of coördinated city, town and village plans, in which the health and well-being of the communities will be the primary consideration.

HYGIENE AND PUBLIC HEALTH AT THE SESQUI-CENTENNIAL EXPOSITION

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STUDENTS of hygiene, public health and preventive medicine will find much of interest at the Sesqui-Centennial Exposition in Philadelphia, where the exhibits from various sources make a comprehensive demonstration of many phases of these subjects. One regrets that they could not have been displayed collectively in a special public health building, for they would have been more impressive and instructive as a unified group and doubtless would attract more popular attention, but various reasons made such an arrangement impracticable.

First to be mentioned, as a matter of course, is the exhibit of the U. S. Public Health Service in the Palace of Machinery, Mines, Metallurgy and Transportation, where most of the exhibits of the United States Government are displayed. Here is shown by various devices and methods what this important branch of the government is doing to protect and advance the public health, and the number of interested visitors constantly to be seen inspecting it leaves no doubt of its value or that it is fulfilling its purpose.

Models of sanitary and unsanitary farmhouses and surroundings, safe and unsafe wells, a well-planned schoolroom, rat-proofed wharf, ship and granary, a delousing station, sewage treatment plant, incinerators, mosquito pupae and larvae, etc., visualize protective measures of interest to everyone. Numerous charts and transparencies showing the seasonal incidence, age frequency and mortality rates of the transmissible diseases, diagrams of physical examination and physical fitness methods conduce to a personal application.

There is also a display of standard biologic products, including the standard antitoxin unit for diphtheria, various instruments and apparatus, and an exposition of the maritime and quarantine functions of the Service. By no means of least importance are the title pages and many illustrations from the 1015 bulletins of the Public Health Service that are obtainable upon request by interested citizens.

This exhibit is under the direction of Dr. Willard Carl Smith, and will do much in the way of giving popular information and impressing the value of the Public Health Service upon the public mind.

In the same building are the exhibits of the Children's Bureau and the Women's Bureau of the U. S. Department of Labor, each having a public health message. The former of these proclaims the work of its two main divisions—the one for maternity and infant hygiene "administering the Federal Maternity and Infancy Act through which state and nation coöperate to promote the welfare and hygiene of ma-

ternity and infancy," and the other for child hygiene which conducts researches and makes available for parents and others authoritative information in this great field.

A number of representatives of the Children's Bureau, headed by Miss Margaret Klein, are in constant attendance to explain its work and answer questions. An important feature is the daily clinic for the free examination of children under 6 years of age, conducted by Dr. Caroline S. Whitney, at which many parents avail themselves of the opportunity to obtain expert and competent advice concerning the problems of their children.

In addition are posters, transparencies and motion pictures to impart information regarding nutrition, posture and the general hygiene of the older child; and models of a well-equipped nursery and of an ample playground to show what can and should be provided for the health and welfare of the coming generation.

The Women's Bureau likewise shows what is being or should be done for women, especially for those in industry, indicating by transparencies and illustrations and by labor saving devices the change from the old to the newer order of feminine activities.

On Broad Street, just north of the building housing the government exhibits, is a fully equipped model playground of two acres or more in extent with a handsome recreation building or pavilion. This is the contribution of the Department of Public Welfare of the City of Philadelphia and serves the double purpose of showing what the city is doing in that line of health service and of providing a safe and attractive place of entertainment, under competent supervision by representatives of the Bureau of Recreation, for children while their parents visit other parts of the exposition.

Of the states having separate buildings on the grounds, only two—Connecticut and Pennsylvania—make any showing of their public health work. Connecticut's exhibit displays the slogan, "For a Clean State and a Healthy People," and gives information by means of charts, photographs and statistics regarding the Bureaus of Administration, Child Hygiene, Public Health Instruction, Public Health Nursing, Preventable Diseases, Laboratories, Sanitary Engineering, Vital Statistics, etc. An especially interesting feature is a large chart showing the "Chronological March of Health Progress," from 1878 to 1926.

In the south wing of the Pennsylvania Building the State Department of Health exemplifies its activities in various ways. A number of illuminated graphs showing the respective mortality rates of the more important transmissible diseases flash at short intervals and indicate that a winning fight is being carried on in the state against most of these maladies. Well-planned models of sanitary and unsanitary farms, protected and unprotected wells and springs, old schoolhouses and new, a model tourist camp, a filtration plant, and of a traveling outfit for testing and safeguarding water supplies along the state highways, attract the attention and impart valuable information within a comparatively limited space.

There is also a display of the serums, vaccines and antitoxins distributed by the department, with a map showing the location of upward of 300 distributing stations, and a laboratory exhibit of the apparatus used for collecting material for the diagnosis of diphtheria, tuberculosis, typhoid fever and malaria, and for the control of narcotic drugs. There are also charts and information regarding governmental and state clinics and dispensaries, photographs of well-nourished and undernourished children, and other items of interest to the passing observer.

Perhaps the most attractive features of the whole exhibit are a central Greek temple in which stands Calder's "Man Cub"—a statue of a healthy looking youngster—and a series of dioramas made up of colored photographs, partially in relief, showing the benefits of heliotherapy and skilled care at the state sanatoria for the tuberculous, of which photographs are also shown. After seeing this exhibit and that of Connecticut one cannot help regretting that more states have not taken advantage of the opportunity to show their activities toward advancing the cause of public health.

In the Palace of Education immediately west of the Pennsylvania State Building a large amount of space has been allotted to medicine, dentistry, pharmacy and nursing. A general committee of members of these professions in Philadelphia coöperate to present a comprehensive demonstration of the protective and preventive rather than the merely curative features and functions of the respective professions. That the general purpose has been attained will doubtless be conceded by almost everyone who studies the exhibit, keeping in mind the fact that the display was especially planned to demonstrate its features and lessons to the laity rather than to scientists and well-informed students of the subjects concerned.

In the space set aside for hygiene and sanitation a number of charts or large placards give as concisely as possible and in plain language information about the causation and transmission of the more common and important infections and the means of preventing or immunizing against them, together with cultures and illustrations of the respective causative organisms and specimens of their antitoxins and immunizing sera. Other subdivisions of the same section display principles and features of domestic and municipal hygiene, recreation, nutrition, social and industrial hygiene, chiefly by means of charts, photographs and other illustrative material.

Special mention should be made of a most interesting series of illustrations in water color of the story of reproduction in the social hygiene booth, of a considerable number of models in the nutrition booth showing 100-calorie portions of various articles of food, and of the new chart of the American Public Health Association showing "Milestones in Public Health," which has recently been added to the display and is attracting much attention.

Next is a clever demonstration of the work of the physicians and visiting nurses of the Bureau of Prenatal and Child Hygiene of the Philadelphia Department of Public Health, this showing a portion of a city street in which the bureau finds its greatest opportunities for service, the various rooms and activities of a city health center, rooms in a home before and after the visits and instruction of a city nurse, and so on. Another exhibit in the hygiene group is that of the City Entomologist showing the breeding places of mosquitoes and flies and the means of controlling them, and some of the life habits and habitats of other harmful pests.

Other parts of the exhibit of the allied committee that have special relation to preventive medicine are those relating to diseases of young children—scurvy, rickets, colds—dental hygiene, eye and ear diseases, heart disease, cancer, hay fever, and such diseases, and especially a series of 18 illuminated dioramas showing in a striking manner the work actually being done in the control of tuberculosis by the 11 organizations jointly responsible for this particular demonstration.

Mention should be made in this connection of the display for which the National Organization for Public Health Nurses, the American Nursing Association, and the National League for Nursing Education, are responsible, which has in many respects a definite relation to public health. This exhibit, designed and largely prepared by the late Stella Boothe, is one of the most beautiful of its kind in the whole exposition. It shows first the various steps in the education of the trained nurse, and then the many and diversified fields in which she finds opportunity for service, these including in addition to the customary home and hospital nursing, those in the Red Cross and the 4 branches of the federal service—Army, Navy, Public Health Service and Veterans' Bureau—state and county positions, public schools, industry, and church and missionary work at home and abroad. The exhibit also shows the distribution of nurses engaged in public health work throughout the country and the relative proportion of such nurses to the population in each state, and also 23 periodical publications devoted to nursing, these being printed in 13 different languages.

Elsewhere in the Palace of Education the importance of preventive and sanitary measures is set forth or stressed in various ways. Thus, the Philadelphia Board of Education in its comprehensive public school exhibit gives much space to school medical inspection and supervision in all its details; the city's Department of Public Welfare has an extensive and attractive reproduction in miniature of its "Camp Happy," to which many hundred of poorly nourished and underweight children are sent each summer for a season of upbuilding and physical betterment. The Pennsylvania State Department of Labor and Industry with the coöperation of a dozen leading industrial organizations, and the Philadelphia Department of Public Safety, has a large and most instructive demonstration of measures and devices for the protection of life and health; and other organizations, such as the National Child Welfare Association, the Pennsylvania State Council for the Blind, the American Federated Organizations for the Hard of Hearing and the Association for the Education of the Deaf, all stress the need and importance of prevention of physical harm and the promotion of health. In spite of whatever impression may be created by the foregoing brief and inadequate description, the writer believes that there is so much of interest at the exposition for every student of health and its problems that all who can possibly do so will find themselves well repaid by not one but many visits.

EDITORIAL SECTION

Expressions of opinion and statements of supposed facts are published on authority of the writer under whose name they appear, and are not to be regarded as expressing the views of the American Public Health Association, unless such statements or opinions have been adopted by vote of the Association.

EDITORIAL COMMITTEE

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THE BUFFALO MEETING

IS THERE something magic in the name of Buffalo or in the way that things are done in that city? The Association met in Buffalo in 1896, a meeting made memorable by the first demonstration in this country of the Widal reaction. Bloods sent from twenty-odd patients in Montreal were diagnosticated without a mistake before the assembly in Buffalo, the first time in the world that any such magic had been achieved. At the second meeting in 1901, Walter Reed gave additional and conclusive proof of the agency of the mosquito in the transmission of yellow fever.

The 1926 meeting did not bring out any such striking demonstration, but it was notable as the largest meeting in the entire history of the Association. The registrations on the first day were also the largest on record, an index of the interest manifested by the members. Through the coöperation of Dr. Matthias Nicoll, Jr., the Twenty-fifth Annual Conference of New York State Health Officers, and the Eighth Annual Conference of Public Health Nurses were held coincidentally with our Annual Meeting.

The program was unquestionably one of the best and most evenly balanced ever presented to us, and there was evident an unusual interest on the part of delegates and members. Standing room in many meetings was frequently at a premium.

Distinctions are invidious, but we cannot help feeling that the two special meetings on milk, both of which were largely given up to the all-important questions relating to pasteurization, stood well toward the top in holding interest. While not announced for the first time here, the paper by Dr. W. P. Larson on immunization against several of our most dreaded diseases by the new method, using detoxified toxin, was thought by many to be of unusual importance, offering, according to the experiments up to the present time, a simplified and safe method of utilizing the protective powers of toxins which in the past have caused accidents.

Our sister country of Canada was well represented, and the United States was well represented in Canada between the meetings. Dr. Charles J. Hastings of Toronto, and Dr. Victor C. Vaughan were made honorary Fellows in recognition of their long and preëminent service, not only to this Association but to the cause to which our Association is devoted.

Perhaps the greatest thing upon which the Association can congratulate itself is the election of Dr. Charles V. Chapin as President. Time and again he has refused to consider the office though it has for years been a matter of common knowledge

that it was his by unanimous vote if he would accept it. Perhaps the genial atmosphere of Buffalo enabled us to overcome at last his modesty and to wear down his opposition.

The hospitality of Buffalo and of individual citizens to the Association and the individual members was unbounded. The special illumination of the Falls and the sky, provided for the entertainment of the Association by the City of Niagara Falls, was a never to be forgotten spectacle, exceeding in beauty and splendor any previous display, according to the testimony of the local citizens. Those who were unfortunate enough to be kept away from this meeting have missed an intellectual as well as social treat, while those who attended will always recall with pleasure that they participated in one of the very best meetings ever held by this Association during the fifty-five years of its existence.

TOXIN-ANTITOXIN MIXTURES

THE LATE Sir William Osler is credited with having said that the man who gives medicines is putting drugs of which he knows little into bodies of which he knows less. The matter is still further complicated when we use biological preparations, for many of which there exist only biological tests. These facts and the great increase in the use of biologicals have caused our government to throw around their manufacture and sale the greatest possible safeguards. The wisdom of this precaution and its efficacy is attested by the remarkable infrequency of untoward results, notwithstanding the millions of injections which are made and the fact that many physicians using them have had no special training in their use. In New York City alone, more than a half-million treatments of toxin-antitoxin have been used without any bad results.

In 1924, near Vienna, Austria, 34 children received prophylactic injections of toxin-antitoxin mixture, 7 of whom died as a result. Persons opposed to prevention at once seized upon the occurrence to frighten parents against further use of the preventive. An official order in Austria prohibited further inoculations, pending inquiry as to the danger or unreliability of the method.

The matter was referred to Professor Grassberger, who with three assistants has made an exhaustive study, taking into consideration every possible contingency. Fortunately the stock preparations as well as a number of ampoules filled with them were available for the tests. Seventy-six of these were definitely toxic and sixty definitely harmless, corresponding to the contents of the stock bottles. The only conclusion possible is that an error was made in filling one series of ampoules from a stock solution of diphtheria toxin instead of toxin-antitoxin. In other words the human factor was the one which failed in this case, and there was nothing in the occurrence which can be charged against the prophylactic use of the toxin-antitoxin mixture.

A somewhat similar case will be remembered as having occurred in Massachusetts in 1924. At that time the investigation showed that the mixture had been exposed to extreme cold, and it was believed that the freezing had led to some dissociation of the toxin and antitoxin. Warnings were sent out to physicians against using material which had been subjected to freezing, in spite of the fact that it was shown that ordinary freezing, and even freezing for 48 hours at a temperature as low as 10°, produced very little physical change in the mixture. Further it was pointed out by Park that in the mixtures now used in this country

the amount of toxin is so small that even the greatest possible dissociation would not be sufficient to produce any serious effect. The investigation of Grassberger showed also that freezing does not make the mixture dangerous, nor do exposure to sunlight or chemical alterations due to the composition of the glass container produce serious changes.

As long as the human factor enters into such procedures occasional accidents must be expected. When we compare the certain protection against a highly fatal disease with the very small number of accidents due to this human factor, it is plain that there is no reason for alarm about the use of toxin-antitoxin for prevention of diphtheria. It would be just as rational to discontinue the use of railroads, on which frightful accidents still occur in spite of the perfection of apparatus and automatic controls which has been attained.

The health officer is peculiarly well placed to carry these facts to his public and to answer the queries which arise in the minds of honest doubters. The facts should be known to all and the absolute truth told concerning such unfortunate occurrences. The cults will unquestionably use them against rational medicine as they always have done. It is our part to answer them with the facts.

AWARD TO DR. BUNDESEN

THE SELECTION of Dr. Herman N. Bundesen, Health Commissioner of the City of Chicago, as the recipient of the "Beneficial Action" Award for 1925–26 is more than usually significant and pleasing. At the time of the death of Victor F. Lawson, this prize, which carries one thousand dollars, was established in his memory by the *Chicago Daily News* to be given to the person who has "performed the most beautiful action or done the most beneficial thing for humanity." The prize was awarded to Dr. Bundesen on account of his work for babies and his stand for clean milk in the city of Chicago.

It will be remembered that Dr. Bundesen excluded from the city milk which he considered unfit for human consumption. The usual threats were made: shortage of milk, increased prices, and so on. In addition, Dr. Bundesen was cited for court action and threatened with fines and imprisonment. It took more than the ordinary amount of stamina and grit to hold his ground, but we rejoice to say that he did not waver in his determination, and up to the present time he has been victorious. Instead of occupying a cell at Joliet, he is still in his home in the city of Chicago and has won a high place in the hearts of his fellow citizens.

That a newspaper should select a health officer for this prize, and award it for the saving of human life, is as significant as it is unusual. Up to the present time, France is practically the only country which has put the saver of life ahead of the military man or the captain of industry. Pasteur was voted to be a greater man than Napoleon.

The award of this prize is a tribute to the Health Commissioner of Chicago and to the department of which he is the capable and efficient head, which is well deserved. It should bring new life and new hope into the hearts of all health commissioners as indicating a change of attitude on the part of the public toward health work. Perhaps we will live to see human life put ahead of great fortunes, and the active health worker, official or otherwise, take his place ahead of the industrial magnate.

ASSOCIATION NEWS

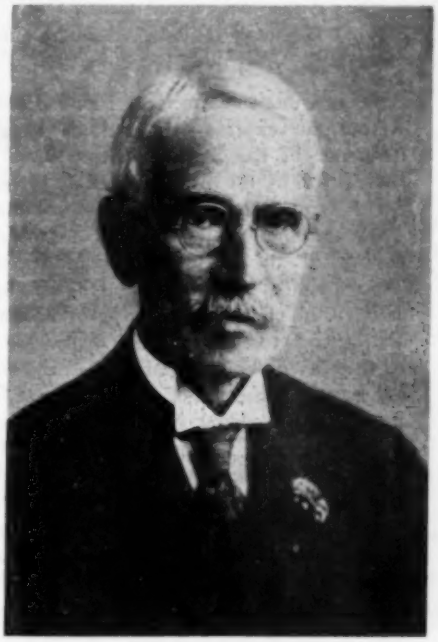
NEW PRESIDENT

CHARLES VALUE CHAPIN, Health Officer of Providence, R. I., was born in that city, January 17, 1856. He received the A.B. degree at Brown in 1876 and was graduated in medicine at the Bellevue Medical College, New York City, in 1879. He has been Health Officer of Providence since 1884, and City Registrar since 1889. He was Professor of Physiology at Brown from 1886 to 1896 and has served as lecturer at Harvard and the Massachusetts Institute of Technology for various periods. He received the honorary degree of D.Sc. at Brown in 1909.

The reports which Dr. Chapin has issued as city registrar for more than thirty-five years in continuation and extension of the policies outlined by his predecessor, Dr. Snow, have been models for statisticians throughout the world and are still the most complete and accurate statistical reports issued by any city in the United States.

Dr. Chapin has also played a leading rôle in the development of standardization of the principles of public health practice. His book, *Municipal Sanitation* (1901), his survey of state health departments conducted for the American Medical Association in 1913; and his work in the recent appraisal of city health department practices by the American Public Health Association have all been pioneer efforts in this field.

Above all, however, it is to Dr. Chapin that we owe the formulation of the entire modern viewpoint in regard to the practical control of communicable disease. He was the first to see clearly that disease was not spread by decaying organic matter or fomites or air or dust but by personal contact, and that the isolation of the individual during the course of the disease rather than gaseous fumigation afterward was the essential factor. His book on *Sources and Mode of Infection* (1910) was truly epoch making. The American Medical Association in 1906 voted that his practice (of abandoning terminal fumigation) would do "infinite harm"; but to-day the whole world follows his lead, and a special report of a committee appointed by the Health Section of the League of Nations gave complete sanction to Dr. Chapin's views, pointing out that the *Sources and Modes of Infection* is even to-day "the most complete and impartial textbook in the world in regard to the life and virulence of disease producing germs. Due to the influence of his example in



CHARLES VALUE CHAPIN

Providence and his writings on the subject, most of the cities in the United States have completely abandoned the practice of terminal fumigation."

The City Hospital of Providence, developed by Dr. D. L. Richardson under Dr. Chapin's advice, has played a leading part in the development of the hospital care of communicable diseases along modern lines, and the attitude taken by the Health Department of Providence has had the widest influence in relegating garbage collection and many phases of nuisance control to the place where they belong—outside the field of the health department.

The City Council of Providence adopted last spring a striking resolution paying tribute to the accomplishments of its health officer in his

native city and, after reviewing the statistical results accomplished, this resolution concludes: "Dr. C. V. Chapin had won the respect and esteem of all classes of citizens in the city of Providence long before any member of the present city government was elected to public office."

To the members of the American Public Health Association, Dr. Chapin is to-day the unchallenged leader among the health officials of this continent. His long experience, his wide knowledge and his faculty of rigorous scientific criticism have made him a guide to whom we all look for the sound direction of our work. The sweetness and the simplicity of his character have made him as beloved as he is honored; and it is a cause of the deepest gratification to every member of the American Public Health Association that Dr. Chapin has at last consented to serve as our official leader.

RESOLUTIONS

Presented by the Committee on Resolutions, John A. Amyot, M.D., Chairman, and adopted by the American Public Health Association at the Fifty-fifth Annual Meeting, Buffalo, N. Y., October 11–14, 1926.

1. RESOLVED, that the American Public Health Association express its gratitude to the Governor of the State of New York, to the Mayor of the City of Buffalo, to the health commissioners of the State of New York and the City of Buffalo, to the directors of the various divisions of the Department of Health of the City of Buffalo, to the officers of the City of Niagara Falls, and to the private organizations of the City of Buffalo and of the neighboring municipalities that took so great an interest in providing for the comfort and entertainment of the members attending the Fifty-fifth Annual Meeting of the Association. The Association also expresses its gratitude to the many friendly and hospitable people of the community of Buffalo and of the neighboring cities for making our work so profitable and enjoyable.

IN MEMORIAM

2. RESOLVED, that the American Public Health Association record its admiration and respect for the past services to the cause of public health given by the following Fellows and members of our Association and its full appreciation of the loss sustained by the public and our profession in their deaths:

H. V. Amerman, Kearny, N. J.
Dwight E. Breed, Austin, Tex.
Nathan Edwin Brill, M.D., New York, N. Y.
Mrs. H. E. Cotton, Shepherdstown, W. Va.
Roscoe E. Doolittle, Evanston, Ill.
Emma Francis, M.S., State College, Pa.
J. W. Freeman, M.D., Lead, So. Dak.
J. R. Harris, M.D., Niagara Falls, N. Y.
Marcus B. Heyman, M.D., New York, N. Y.
H. J. Howk, M.D., Mt. McGregor, N. Y.
Helen Louise Johnson, New York, N. Y.
T. J. Kilmartin, M.D., Waterbury, Conn.
William Chas. Laidlaw, M.B., Edmonton, Alta.
Wm. W. MacDonnell, M.D., Jacksonville, Fla.
George N. McLoughlin, M.D., Seattle, Wash.
William H. Purdy, M.D., Mt. Vernon, N. Y.
William Rhame, M.D., Freeport, N. Y.
David L. Rundlett, M.D., Sioux Falls, So. Dak.
Charles E. Simpson, M.D., Lowell, Mass.
George B. Somers, M.D., San Francisco, Calif.
Professor Anne H. Strong, Boston, Mass.
H. C. Tinkham, M.D., Burlington, Vt.
John Tombs, Los Angeles, Calif.
Edith Twiss, Poughkeepsie, N. Y.
Frank N. Whittier, Brunswick, Me.

RESOLVED, that a copy of this action of the Association be sent to the family of each of the deceased Fellows and members.

3. WHEREAS, the movement which has been going on for years for a reorganization of federal health activities was crystallized last spring in a measure introduced as H. B. 10125, and known as the Parker Bill, and

WHEREAS, the principles embodied in this bill would prove of incalculable benefit in strengthening the health organization of the federal government, and would at the

same time make possible substantial economies by eliminating wasteful duplication of effort, be it

RESOLVED, that the American Public Health Association urges the enactment during the coming session of Congress of a measure along the general lines of the Parker Bill and directs the officers of the Association to make every possible effort to further this end.

4. WHEREAS, there is a growing demand throughout the world for better organization of medical service looking toward the checking of incipient disease, and

WHEREAS, this movement can only be wisely guided by the coöperative efforts of public authorities on the one hand and of the medical profession on the other, be it

RESOLVED, that the Committee on Administrative Practice be directed to undertake a systematic study of this problem in coöperation with appropriate representatives of the American Medical Association.

5. RESOLVED, that this Association approve the continuation for two years of the appropriation by Congress of funds to continue the activities under the Sheppard-Towner Act as a demonstration for the promotion of the health of mothers and infants.

6. WHEREAS, the National Congress of Parents and Teachers has made a material contribution to the public health through its campaign for the health examination of preschool children, be it

RESOLVED, that the American Public Health Association assures the National Congress of Parents and Teachers of its cordial approval of this work and offers its coöperation through its constituted committees in the continuation of this program.

7. RESOLVED, that the American Public Health Association favors the placing of the regular sanitary engineer of the United States Public Health Service in the same commissioned status and with same travel allowances as the regular medical officers in that service, and therefore authorizes the continuance of its committee to act for the Association on that matter.

LIST OF NEW MEMBERS

Alexander C. Abbott, M.D., Sc.D., Dr.P.H., Philadelphia, Pa., Director, School of Hygiene, University of Pennsylvania

Thomas Adams, New York, N. Y., General Director of Regional Plan of New York, Russell Sage Foundation

Laurence H. Allwardt, B.S., D.Sc., Chillicothe, O., Director Public Health Laboratory

Florence L. Apple, Goshen, Ind., Elkhart County Nurse

Amos L. Beaghler, Denver, Colo., Director of Health Education, Denver Public Schools

Caroline D. Beegle, R.N., Chefoo, China, Supervisor Temple Hill Hospital, American Presbyterian Mission

Dudley G. Black, Ann Arbor, Mich. (Assoc.)

Joseph Blickensderfer, M.D., New Philadelphia, O., Health Commissioner

Harry B. Boice, M.D., Winter Park, Fla., Medical Examiner, Rollins College

Alice F. Boyer, R.N., Trenton, N. J., Assistant in charge of Administration Bureau of Child Hygiene, State Department of Health

Mabel C. Bragg, Newtonville, Mass., Assistant Superintendent of Schools

Madge Bresnahan, Grand Rapids, Mich., Public Health Nurse

Nelson O. Brooks, M.D., Oneida, N. Y., Health Officer

Lewis H. Brown, M.D., Purdy's Station, N. Y., Health Officer

Sidney P. Brown, M.D., Potsdam, N. Y., Health Officer

Mildred M. Bruce, Jamaica Plain, Mass., Social Service Worker, Home for Girls

Wright A. Brunson, D.V.M., Daytona Beach, Fla., City Health Officer

Louis Cantor, Jerusalem, Palestine, Sanitary Engineer, Department of Health, Government of Palestine

Thomas H. Chattle, M.D., North Bay, N. Y., Health Officer

Charles F. Chrisman, New York, N. Y., with American Child Health Association (Nation-wide Milk Survey)

Thomas T. Church, Salem, O., Commissioner of Health

Daniel Connolly, M.D., Kingston, N. Y., Health Officer

Cathlena A. Cooper, R.N., B.S., Syracuse, N. Y., Educational Director, Syracuse Health Demonstration

William B. Cornell, A.B., M.D., Albany, N. Y., Health Officer

S. Douglas Craig, B.S., M.D., Winston-Salem, N. C., Director, Tuberculosis Clinic, Department of Health

Oscar M. Craven, M.D., Springfield, O., Director of Public Health

Thomas Darlington, Ph.B., M.D., New York, N. Y., Sanitary Engineer, Department of Health

Mary F. Dickerson, R.N., Keuka Park, N. Y., Supervisor Physical Welfare, Keuka College

Mildred G. Drescher, Ann Arbor, Mich., in 1927 will be in charge of Mission Girls' School in Nagpur, India

Ruth M. Duryee, Cambridge, N. Y., Bacteriologist, Mary McClellan Hospital

Lucy L. Edwards, B.A., Chattanooga, Tenn., Assistant Bacteriologist, City Health Department

H. Ray Eggleston, B.S., M.A., Marietta, O., Bacteriologist for City of Marietta and Professor of Zoölogy and Bacteriology, Marietta College

Daniel A. Eiseline, M.D., Shortsville, N. Y., Health Officer

Percival E. Fansler, E.E., New York, N. Y., Associate Editor, *The Heating and Ventilating Magazine*

Marian E. Farbar, M.D., Richmond, Ind., Ann Arbor University Health Services

Paul T. Ferrer, M.D., Cameron, N. Y., Health Officer

Alonzo B. Foster, M.D., C.M., Fonda, N. Y., Health Officer

Dolph V. Galloway, B.S., M.D., Iuka, Miss., Health Officer and Director of Health for Tishomingo County

Robert H. Galt, B.S., Sioux City, Ia., Laboratory Assistant, Sioux City Board of Health

Florence Gilman, M.D., Northampton, Mass., Supervisor of Health and Professor of Hygiene at Smith College

George N. Golding, Belleville, N. J., Health Officer

J. Edward Grant, B.S., M.D., Northville, N. Y., Health Officer, also President of the Fulton County Tuberculosis and Public Health Association

Walter A. Grayson, B.A., Monrovia, Calif., Sanitary Officer, Junior Grade, Los Angeles County Health Department

Andres Gubetich, M.D., Paraguay, S. A., Director of the Department of Hygiene (Assoc.)

Richard P. Hall, Ph.D., New York, N. Y., Teaching Microbiology and Bacteriology, New York University

Henry J. Harnly, McPherson, Kans., Teacher of Physiology and Hygiene and Public Health, McPherson College (Assoc.)

C. H. Harris, M.D., Louisville, Ky., City Health Officer

Emily B. Heard, R.N., Chattanooga, Tenn., Director Bureau of Public Health Nursing, Department of Health

George D. Heath, M.S., M.D., Dr.P.H., La Plata, Md., Deputy State Health Officer, Maryland State Department of Health

William Charles Heinze, Farrell, Pa., Health Officer

Anna Heisler, A.B., B.S., R.N., Richmond, Va., Teacher of Public Health Nursing, School of Social Work and Public Health

Joseph N. Heywood, D.O., Snowflake, Ariz., City Health Officer

E. T. Hollingsworth, M.D., Clinton, N. C., County Health Officer

Edward A. Holmes, M.D., Downsville, N. Y., Health Officer

Clack D. Hopkins, B.S., M.D., Tampa, Fla., Medical Inspector

Fern Howard, R.N., Monroe, Mich., County School Nurse

Horace L. Hulett, M.D., Bolivar, N. Y., Health Officer

L. W. Hutchcroft, Madison, Wis., Assistant State Health Officer

Wyman D. Jacobs, M.D., Averill Park, N. Y., Health Officer. Jail Physician and Surgeon, Troy, N. Y.

John H. Janney, Jr., M.D., B.S., Rio de Janeiro, Brazil, Administration of County Health Work in Brazil. Regular member of the International Health Board

George Q. Johnson, M.D., Ardsley, N. Y., Health Officer

George T. Johnson, A.B., M.D., Terre Haute, Ind., Health Officer

Fanny H. Kenyon, M.S., Detroit, Mich., Laboratory Technician and Instructor in Chemistry in The Henry Ford Hospital and School of Nursing and Hygiene

William R. King, M.D., Stony Creek, Va., County Health Officer

A. Louise Kinney, R.N., St. Louis, Mo., American Red Cross Nursing Supervisor

Louis Frederick Knoepp, Ann Arbor, Mich. (Assoc.)

Frank L. Larkin, Fall River, Mass., Secretary, Board of Health

William H. Larkin, Iowa City, Ia., Junior Sanitary Engineer, Division of Water Safety Control, Chicago, Ill.

Esther Lawson, R.N., Alpena, Mich., School Nurse

Thomas F. Lee, Brockton, Mass., Executive Officer, Board of Health (Assoc.)

Walter W. Lee, M.B., Indianapolis, Ind., Epidemiologist

Artemas E. Legare, B.S., C.E., Columbia, S. C., Sanitary Engineer, State Board of Health

Anne M. LeRoy, R.N., Kenton, O., Former Public Health Nurse and School Nurse

George R. Little, M.D., Schaghticoke, N. Y., Health Officer

Sven R. Lokrantz, M.D., Los Angeles, Calif., Director Department of Health and Corrective Physical Education of the Los Angeles City Schools

John D. Long, M.D., Santiago, Chile, Technical Adviser, Ministry of Hygiene of Chile. Officer U. S. Public Health Service

Millard T. MacAvelia, M.D., C.M., Lake Worth, Fla., District Medical Officer

Richard P. MacKnight, M.D., New Bedford, Mass., State District Health Officer

David C. McKenzie, M.D., Granville, N. Y., Health Officer

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Albert C. Mitchell, Austin, Tex., Supervisor Publicity and Exhibits, State Board of Health

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Howard A. Orvis, M.D., Grass Lake, Mich., Health Officer

Rafael A. Osorio, M.D., Mexico City, Mex., Member of Mexican Public Health Department

Alfred H. Parsons, M.D., Great Neck, N. Y., Health Officer and Medical Inspector of Schools

Charles W. Pease, M.D., Tampa, Fla., Field Medical Officer

Anna Pehrson, A.B., Salt Lake City, Utah (Assoc.)

Leonard V. Phelps, Bluefield, W. Va., Bacteriologist and Chemist for the City of Bluefield

Charles F. Poe, B.A., M.A., Ph.C., Boulder, Colo., Associate Professor Sanitary Chemistry, University of Colorado. Assistant State Chemist

Charles W. Polk, M.D., Memphis, Tenn., Medical and Sanitary Inspector of Schools of Shelby County

Owen E. Puckett, Carlsbad, N. M., County Health Officer

Albert R. Renwick, M.A., Calumet, Mich., Student of Public Health

John W. Rice, Ph.D., Lewisburg, Pa., Professor of Bacteriology and Lecturer in Public Health and Hygiene

Addson O. Roberts, M.D., Round Lake, N. Y., Health Officer

Daniel L. Rogers, M.D., Bolton Landing, N. Y., Health Officer

Morse E. Smith, Tela, Honduroo, C. A., Laboratory Technician, Tela Hospital

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Mary E. Rozzasco, R.N., Grand Rapids, Mich., County Tuberculosis Nurse

Thomas T. Sawyer, M.D., Auburn, N. Y., Health Officer
H. W. Schoenlein, M.S., Detroit, Mich., Bacteriologist, Research Laboratories of Digestive Ferments Company
Charles E. Shultz, M.D., Bloomington, Ill., City Health Director
William M. Sill, M.D., Jamestown, N. Y., Superintendent of Public Health
Horatio Z. Silver, M.D., Eaton, O., Commissioner of Health
Emory W. Sink, A.B., M.S., M.D., Ann Arbor, Mich., Assistant Professor in Hygiene and Public Health, University of Michigan
D. Palmer Smagg, M.D., Stottville, N. Y., Health Officer
Isabel Small, Kutztown, Pa., Director of Health Education for Girls, State Normal School
James A. Smith, St. Louis, Mo., Chief Diagnostician, St. Louis Division of Health
George E. Taylor, M.D., Hornell, N. Y., Health Officer
Edrick K. Tingley, V.M.D., Marietta, Pa., Director of Laboratories, The Gilliland Laboratories, Inc.
Lee S. Troth, Chicago, Ill., Chemist Chicago Department of Health
Lona L. Trott, R.N., St. Louis, Mo., State Supervising Nurse for American Red Cross in Iowa
Herbert F. True, M.D., San Francisco, Calif., Epidemiologist and Assistant to Health Officer
James A. Turner, M.D., Nashville, Ind., Member of State Board of Health, and County Health Commissioner
Vladimir K. Volk, M.D., Pontiac, Mich., Assistant Director of Department of Public Health
Frederick Walmsley, Malden, Mass., Health Inspector
Joan Walsh, R.N., Upper Darby Township, Pa., Health Officer
Arthur M. Washburn, B.S., M.D., Gallup, N. M., McKinley County Health Officer
Doris L. Weatherill, B.A., Missoula, Mont. (Assoc.)
Fred M. Williams, Rahway, N. J., Health Officer
James W. Wiltse, M.D., Albany, N. Y., Health Officer
Frederic A. Woll, B.S., A.M., Ph.D., New York, N. Y., Professor of Hygiene, City College of New York

THE FOLLOWING HAVE BEEN DECLARED ELECTED TO FELLOWSHIP IN THE ASSOCIATION

INDUSTRIAL HYGIENE SECTION: Elizabeth B. Bricker, M.D., Lititz, Pa.; Frederick Schiller Lee, LL.D., Ph.D., New York City.

FOOD AND DRUGS SECTION: Walter George Hollingworth, D.V.S., Utica, N. Y.

CHILD HYGIENE SECTION: J. L. Blumenthal, M.D., Dr.P.H., New York City.

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UNAFFILIATED: Elisabeth McVeen Saphro, M.D., Los Angeles, Calif.; John L. Rice, M.D., New Haven, Conn.

HONORARY FELLOWS

Charles J. Hastings, M. D., Toronto, Ont.
Victor C. Vaughan, M.D., Washington, D. C.

BOOKS AND REPORTS

What's **Best to Eat**—*By S. Hennnig Belfrage, M.D. With a practical supplement by Lucy H. Yates, M.C.A. New York: William Wood & Co.*, 1926. 199 pp. Price, $3.00.

No problem confronting Europe and America at present is more important than the application of the science of nutrition in the daily life of the people. At least, so says Professor E. V. McCollum in a brief foreword to this latest addition to the many works on food. The book is a popular presentation by an English author and in its discussion of essential food factors is generally sound and sensible. It has the tendency, however, to ascribe all of the ills of mankind to faulty nutrition, and the chapters on constipation and food and disease contain many statements which are not only unorthodox, but, by the consensus of scientific opinion, are wrong. Cancer and rheumatism, for instance, are alleged to have their probable origin in food and bowel habits and the work of Sir Arbuthnot Lane, to whom incidentally, the book is dedicated, is quoted with apparent approval. Such an assertion as, "It is no exaggeration to say that constipation may well bring the downfall of civilization in its train," seems after all, a trifle exaggerated. Unqualified condemnation of canned foods is also somewhat ridiculous. A reference to the "arresting book" of McCann adds no luster to Dr. Belfrage's reputation for accuracy.

The practical supplement, containing cooking suggestions and recipes, by Miss Yates, comprises about 60 pages. The entire book is well printed, with large type on good paper. There is no index. J. A. T

Epidemiologie—*Par Ch. Dopter et Vezeau de Lavergne. Paris: J.-B. Baillière et Fils,* 1926. Price, 70 fr.

This is Volume XX of the Treatise on Hygiene, published under the direction of Professors Louis Martin and Georges Brouardel. Like Volume XIX (reviewed in the May, 1926, issue of the JOURNAL), it is a masterly presentation of our knowledge concerning the diseases treated. We are struck by the thoroughness which is too often absent from books written in this country. For example, 286 pages are devoted to typhoid fever, 24 to the paratyphoid fevers, and 45 to antityphoid vaccine and its use. When one finishes reading the articles in this book, there are few questions which can be asked. Every point of view has been thoroughly considered.

Quite some space is given to consideration of the typhoid carrier, and it is evident that in France, and even in Germany, where paternalism probably reaches its highest development, the carrier is considered a very troublesome problem. Prolonged isolation under constraint is considered impracticable and even inhumane. Sterilization is difficult and often impossible. The carrier then presents a problem which up to the present time remains unsolved.

We note with some surprise that preventive measures against typhoid carriers do not appear to have advanced as far in European countries as in America. Certain problems are more easily handled in Europe because of the greater respect for law and authority seen there than in this country. Yet we remember that Robert Koch complimented the control of diphtheria in New York City under the late Dr. Hermann M. Biggs, and made the statement that a new generation of physicians would have to be born and educated in Germany before such efficient control could be obtained there. In like manner the report on the control of diphtheria made by a representative of the League of Nations, ended with the statement that the application of the Schick test and active immunization against the disease had proceeded further in America than it had in Europe, and it was regarded as impracticable to put any such active campaign into effect in any part of Europe as has been conducted in New York City. We may feel a reasonable pride in statements of this kind.

The only criticism that can be justly made of the volume before us is the same as that we made of Volume XIX, namely, that the manuscript seems to have been prepared too far in advance of publication, since we have been unable to find any references later than 1923. However, considering the diseases treated in this volume, this is not a serious matter, since our knowledge concerning them has not moved forward with the rapidity seen in other conditions.

The historical method prevails, and the effect of each disease on armies and in time of war receives special attention, so that the book is almost a treatise on military hygiene in addition to its general character.

It is well printed, well illustrated and abounds in tables which clarify and explain the text. The paper is of inferior quality, but one can forgive much in view of the unusually excellent treatment of the subjects considered.

M. P. RAVENEL

Hay-Fever and Asthma. *A Practical Handbook for Physicians and Their Patients—By Ray M. Balyeat, A.M., M.D. Philadelphia: Davis,* 1926. 198 pp. Price, $2.00.

Although not a fatal disease, hay-fever is so widespread and so distressing that information concerning it is always welcome. It is estimated that 1 per cent of the people in the United States suffer from the disease, while in some sections its prevalence is greater than this. About 65 per cent of all cases finally suffer from asthma. About 95 per cent of all hay-fever is due to wind-borne pollinated plants, the remaining 5 per cent being due to foods, face powder, dandruff, feathers, etc. Approximately 75 per cent of patients can expect complete, or practically complete, relief if treated prior to the hay-fever season, and 50 to 60 per cent relief to a greater or less extent if desensitized during the season. This means that from 70 to 80 per cent of regular hay-fever sufferers can hope for complete or practically complete relief.

The book is written for physicians and their patients. Sensitivity is described in simple language and the author holds that patients should know the cause of their trouble. He points out to them that it is useless to treat them with the wrong pollen. The cause of their distress must be determined by skin tests and the proper pollen or pollens, or other products such as dandruff, must be employed. Plants with brilliant flowers do not as a rule give hay-fever, since their pollens are moist and transferred by means of insects. Those who attribute their trouble to sunflowers, golden rod, etc., often

forget that some insignificant plant, which has a wind-borne pollen, may be flowering at the same time.

Descriptions are given of a large number of the grasses and weeds usually responsible for hay-fever in this country, especial attention being paid, however, to those in the Middle West. Useful charts giving the dates of pollination and the distribution in the United States of the common hay-fever and asthma producing weeds and grasses are included.

A considerable number of case records is included which will serve as useful guides. These include cases due to pollens, feathers, animal dandruffs, powders, dusts, etc. When the proper preparation is employed or the source of irritation is removed, the cures sometimes apparently partake of magic. The discussion of local treatment and operations is conservative and marked by common sense.

The book is in no sense a treatise on the subject but is well written and will serve a useful purpose within the limits which the author sets for it. It is well printed and illustrated and can be recommended to those interested in the subject, especially laymen, and physicians who are not specialists. M. P. RAVENEL

The White Spots of Epilepsy, and Other Phases of the Disease—*By Edward A. Tracy, M.D. Boston: Howard,* 1926. 129 pp. Price, $2.50.

In view of the progressive nature of epilepsy, any discovery which holds out a prospect of prevention and an early cure will be welcomed. The book before us is the result of an earnest and careful study of the disease over a period of ten years, during seven years of which abundant opportunities at a clinic for nervous and epileptic children were utilized. The "white spots," which give the title to the book, were discovered by the author some years ago and are due to a vasomotor reaction in the skin produced by stroking. Photographs of these spots were first made at the instance of the late Professor Southard of Harvard University. The author believes that he has found a method of controlling the circulation so as to prevent the development of epilepsy and believes that in the early stages it is readily curable. His results depend upon observations which should be easily confirmed or discredited.

The book is to be commended for its hopeful outlook and the stimulus which it should give to the further study of epilepsy, especially with the object of prevention and cure. The sincerity and intense earnestness of the writer is evident in every page, while his standing, personal as well as professional, entitles him to a fair hearing. The book is abundantly illustrated and contains a full list of references and case records. M. P. RAVENEL

Vital Capacity of the Lungs—*By J. A. Meyers, M.S., Ph.D., M.D. Baltimore: Williams & Wilkins,* 1925. 140 pp. Price, $3.25.

In this book, the study of vital lung capacity is raised from the status of an exercise for physiology students, to a position of diagnostic and prognostic value. The history of the study of vital capacity is sketched and the modern methods of obtaining it are outlined.

Interesting facts brought out are the factors affecting vital capacity in health and disease. For instance, it is shown that excessive physical training often results in overdevelopment, and sedentary occupations may retard it. Beginning at age 45 there appears to start a reduction in vital capacity which progresses with age. By vital capacity, of course, is meant the volume of air represented by the deepest possible inspiration and expiration of air by the lungs. It is lower in the female than the male.

The chapter on the influence of disease is particularly interesting. It points out that old pleural adhesions, deformities of the thorax, emphysema, ossification of costal cartilages and costovertebral joints, asthma, heart trouble, pneumothorax, lung abscess, tuberculosis and pneumonia all reduce vital capacity very materially, and its prognostic value in pneumonia, pleurisy, cardiac disease and tuberculosis is treated in detail. A. G. BOWER

Health for Every Day—*By M. A. Bigelow and J. Broadhurst. New York: Silver, Burdett,* 1924. 255 pp. Price, $.72.

This book has been written as a textbook for health teaching. It covers problems which include the mental and social as well as the physical welfare or well-being of the child. Emphasis is placed on accidents and other avoidable dangers. Teachers will do well to follow the suggestions regarding personal hygiene made in this textbook. The chapters on personal hygiene have been carefully prepared. The illustrations and interesting manner in which the facts are presented make the book a real guide for the study and practice of health. C. J. COUCH

Manual of Public Health Nursing—*Prepared by the National Organization for Public Health Nursing. New York: Macmillan,* 1926. 169 pp. Price, $1.10.

The rapid development of public health programs has placed many workers, including the nurse, in a field where the lack of a fundamental knowledge of principles of work has been a serious handicap.

Unfortunately, there are many nurses who have not had the advantage of special public health preparation, and who must meet their problems without the aid of expert advice.

For this reason, this manual acquires a significance of great importance to public health nursing; and the authors have made a distinct contribution to public health work.

One cannot do better in describing the contents of the manual than to quote from the preface the following: "The aim of this manual is to suggest methods which may be used as a guide by the nurse employed on a city staff, in a county, or in a small community, whether she is engaged in a special type of public health nursing, or carrying out a general community program. The technic of nursing procedure has been adapted in accordance with the fundamental principles of public health nursing and to the facilities and equipment available. Nursing procedures are subject always to the approval of local medical opinion."

Part I discusses the organization and administration of public health nursing in direct and concrete terms defining policies for the various types of nursing service. The scope of work and the relationship of the public health nurse to coöperating community groups, including the medical profession and other health and social agencies are well covered and contain valuable information.

Part II outlines definite standards for nursing procedures and the care of the patient in different types of nursing service demanded of the public health nurse.

The need for uniform methods of work for all nurses in this field has long been felt—and, since the policies and standards set up in the manual are those approved by our public health leaders, it is hoped that they will be universally adopted.

The manual, printed on light paper, carries an index which adds much to its usefulness.

The appendix contains a brief but pertinent bibliography.

This publication fills a long felt need, and we thoroughly recommend it, not only to the public health nurse, but to the health officers for study. It should be in the possession of everyone interested in this developing field of health education. EMILIE G. ROBSON

Laboratory Manual—*By C. C. Young, Dr.P.H., Michigan Department of Health,* 1926. 188 pp., 21 illus.

There are many textbooks of bacteriology and chemistry, but there are few manuals of modern laboratory practice. Moreover, the public health laboratory director has been obliged to work out the administrative details of his office somewhat independently, because of the rapid development of this service and the lack of guides covering the administrative aspects of the problem.

Dr. Young has rendered a valuable service in bringing together in concise form the important administrative features of the state public health laboratory work. The information has been assembled from different sources, much of it from personal experience as a laboratory director in the state of Michigan.

The manual is divided into two parts. Part 1 deals with the development and organization of the state laboratory; Part 2 is devoted to detailed methods of procedure in the various divisions of the laboratory bureau. These divisions are as follows: Records, Immunology, Diagnostic Microbiology, Media Production, Clinical Pathology. A medical supply depot is described for the purchasing and furnishing of medical, surgical, hospital and laboratory equipment and supplies for state institutions. Several instructive charts and illustrations add to the usefulness of the publication. One valuable table shows the laboratory activities in each state of the United States and in several provinces during the year 1923. A set of the laboratory blanks accompanies the manual.

To those who have followed the rapid progress in development of the Michigan State Laboratory, it may not be surprising to note the emphasis properly given to the need of adequate personnel, properly trained to carry out the important functions of a public health laboratory. It is likewise gratifying to observe that stimulus is given to continued study of laboratory problems through contact with current periodicals, seminar or journal club discussions, and individual research. IRA V. HISCOCK

The **Genus Amblyomma**—*A Monograph of the Ixodoidea. L. E. Robinson. New York: Macmillan,* 1926. 302 pp. Price, 20 s.

With the demonstration by American authors (Smith and Kilborne) that Texas fever is transmitted by ticks, this group of external parasites immediately assumed a new rôle in scientific study. Not only did later studies prove that certain other diseases, also, of man and of domesticated and of wild animals were transmitted by ticks but conditions known as tick paralysis, tick fever, etc., came into prominence. As the public health aspects of the subject called for were more detailed zoölogical knowledge in regard to the vectors, various zoölogists (Neumann of France; Nuttall, Warburton and Robinson of England; Banks, Hooker, Salmon, and Stiles of the United States, and others) undertook special studies on this group of the *Acarina*. The monograph by Nuttall, Warburton, and Robinson represents the latest and most extensive of the discussions.

The present number, on the genus *Amblyomma,* is fully up to the standard of the earlier numbers. It contains diagnoses, keys, synonymy, descriptions, geographical distribution, hosts, and biology. The illustrations are excellent.

The monograph is indispensable to the investigator who desires to determine ticks or who studies tick-borne diseases.

C. W. STILES

Oeuvres de Pasteur *réunies par Pasteur Vallery-Radot, Medecin des Hopitaux de Paris. Paris: Masson et Cie. Tome Premier, Dyssymétrie Moléculaire,* x+480 pp., 1922. Price, 50 francs net. *Tome II, Fermentations et Générations dites Spontanées,* viii+664 pp., 1922. Price, 65 francs. *Tome III, Études dur le Vinaigre et sur le Vin,* viii+519 pp., 32 col. pl., 1924. Price, 100 francs.

The true greatness of great men is rarely appreciated in their own day for the reason that their influence upon the future is not as yet revealed. This is especially true of the scientist, where the extent to which his life and work direct the course of events is revealed only after the lapse of time, as, for example, in the case of Mendel. Few men of science have lived to see so great an influence emanating from their investigations as did Pasteur, to whose stimulus the growth of preventive medicine, and the enlargement of the fundamental concept of biology came to much fruition within his lifetime. A perspective of the sources of this influence is afforded us to-day in the republication in collected form of the writings of this great leader. As projected by the editor, Dr. Pasteur Vallery-Radot, they will fill seven large volumes, totaling over 3,500 pages. The principle upon which this voluminous and diversified material is arranged is fortunately determined by the logical manner in which Pasteur's work itself developed, as has been shown so forcibly in the editor's well-known *Life of Pasteur.* The great themes which filled with ceaseless activity the life of this great biologist have not only a logical succession, but an intimate continuity, although their chronology overlaps somewhat and their development is at times interwoven. The volumes follow this order and the articles contained within each one are in chronological order.

The first of these volumes deals with molecular dissymetry. This contains 61 articles, 48 of which are Pasteur's published contributions, 3 are his unpublished preface, introduction and 1 chapter of a projected, but never completed, work on "Dissymetry in organic products in nature." The remainder are reports of several commissions of the French Academy upon Pasteur's researches and the presentation address before the Royal Society of London when Pasteur was given the Rumford medal. This work of the young chemist stimulated the growth of stereochemistry, but above all naturally paved the way for and carried him over into the later fields of his work in fermentations and diseases. He persistently maintained his interest in this dynamic morphology of molecular organization and, although his contributions to it tapered off after 1860 and his hypothesis that this asymmetry was a characteristic wholly peculiar to organic substances seems no longer tenable, he longed to return to the study of dyssemmetry in crystals with the hope that this might some day reveal the secret of the origin of life.

This volume is particularly revealing of the man and his scientific method. His analytical mind seized upon the problem presented by the chemically similar but optically different tartrates and racemates. His ardor knew no limits when on the trail of the elusive racemic acid. His creative imagination extended an ever enlarging horizon of hypotheses suggested by the relations and ramifications of his field of analysis of the organizations of molecules and crystals. This carried him across the bound-

aries which then, far more than now, seemed to part chemistry from biology. Above all, his zeal for the truth led to painstaking experimental tests of his own views and those of his critics. His rigorous scientific experience in this field of experimental morphology of the molecule and the crystal undoubtedly prepared him for his later work in far more difficult fields of the occurrence, structure, behavior and complex relations of microörganisms.

Pasteur's work in chemistry and crystallography was published in 1847–1886, though after 1860 little new appeared. The second volume deals with the subjects of fermentations (1857–1863) and spontaneous generation (1860–1866), to which he came "entrâiné, enchâiné, devrais-je dire" by his previous investigations. The volume contains 105 contributions from Pasteur and 8 documents bearing upon his researches. It includes some of his papers of the most far-reaching implications, such as his initial paper on lactic acid fermentation, the memoir on alcoholic fermentation, his various contributions to the biochemistry of the processes of fermentation, his discovery of anaerobes and of the specific relations of given organisms to particular fermentations and their admixtures. These contributions embody his demonstration of the relation of living microorganisms to fermentations and that the addition of albuminous material to dextro-ammonium tartrate was followed by fermentation, while its addition to ammonium paratartrate, the optically inactive mixture of righthanded and lefthanded tartrates, was followed by the disappearance of the righthanded and the clouding of the solution by microörganisms. The volume also contains his refutation of Liebig's chemical interpretation of this process and of putrefaction, though he did not arrive at the concept of enzymes.

Against the advice of Biot and other scientific friends, he launched the whole force of his great energy, keen insight, and skillful precautions in an attack on the much discussed, but more or less academic problem of spontaneous generation. This resulted in the famous contest of Pasteur and Tyndall with Pouchet, Bastian and others, late echoes of which may still be heard even now. This experimental attack on heterogenesis was fruitful in affording a theoretical biological background for correct ideas on the basic importance of heredity, demonstrated the widespread recurrence of microörganisms in nature, their remarkable powers of resistance to adverse conditions, their thermal range, the significance of sporulation, and opened the way for the refined technics of sterilization and pure culture. Not the lease in importance was its basic value as a preparation for Pasteur's later work in the relation of microörganisms to disease and its important service in preparing the scientific world and the public for the reception of this relationship.

The pages of this volume reflect a period of strife and criticism which Pasteur's ideas and discoveries created. Liebig, Pouchet, Bastian, and Bechamp felt the thrust of his rapier, courteous but keen. A weak point in his opponents' armor was sure to be found, sometimes with satire, and often with humor. Thus, at the Soirée at the Sorbonne on April 7, 1864, on "Spontaneous Generation," he quoted Van Helmont to the confusion of Pouchet. This alchemist of the Seventeenth Century proposed a recipe for the spontaneous generation of mice from cheese stimulated by the odor from a "chemise sale" which closed the experimental container. In twenty-one days breeding mice appear. Pasteur informed his audience that he would show them where the mice had entered in Pouchet's experiments.

This volume also contains a report of the long since scarce brochure of Pasteur's dealing with Claude Bernard's posthumous article on fermentation, with the editor's collation of the original manuscript with the article as published, and his comments upon the changes.

The third volume illustrates an outstanding feature of Pasteur's activities, namely, his great willingness, in fact eagerness, to turn his scientific knowledge, his technic, and his analytical powers to the solution of practical problems of the community and state. It contains his well-known "Études sur le Vinaigre et sur le Vin," as well as 39 minor contributions and 5 documents bearing on these subjects.

The editing of this monumental series has been most painstakingly done. The texts of all the documents are reproduced in entirety and in the original form, except for the correction of punctuation and typographical errors. Words inserted by the editor are bracketed. Bibliographic citations have been verified and amplified. Variations in articles published in two or more places are noted, or the articles are reprinted in full. The editor's footnotes give pertinent explanatory data. It is to be hoped that an index will be found in the last volume. The typography is excellent and the series is a fine example of scientific bookmaking.

All who are so fortunate as to possess this series will value the frontispiece to the first volume, which is an excellent reproduction of Edelfeldt's well-known painting of Pasteur in his rabies laboratory. C. A. KOFOID

Textbook of Public Health—*By E. W. Hope, O.B.E., M.D., D.Sc., and C. O. Stallybrass, M.D., D.P.H. Edinburgh: E. & S. Livingstone,* 1926. 340 pp. Price, 15s. net plus postage.

The long experience of the senior author of this book, both as a teacher and as an administrative officer, fits him peculiarly for his task. The further fact that the book has reached its 9th edition is evidence that it has successfully fulfilled a mission. In the preparation of the present edition, Dr. Stallybrass, assistant medical officer of health of Liverpool, and lecturer in the University of Liverpool and the Liverpool School of Tropical Medicine, has taken part.

It is a distinct relief and pleasure to review a book of this kind. While it has been prepared as a textbook for medical students and practitioners who are reading to obtain the Diploma of Public Health in England, it contains much material which every physician should have at hand and be more or less familiar with.

The first part of the book is taken up with a chapter on public health legislation, none of which is applicable to conditions in America, though it can be studied with advantage in this country. Considerable attention is given to climate and the effects of weather, most of which applies chiefly to Great Britain. All of the usual subjects are treated of in an interesting and informative fashion, and in addition, some attention is given to town planning, the need for which is becoming more and more important in this country each year. The chapter on General Epidemiology is especially good, giving in a condensed form a vast amount of just such information as health officers and physicians need to have at their finger tips. Throughout, the book is characterized by accuracy in statement as well as fact. While here and there slight mistakes may be noticed, only one has come to our attention which seems of importance. On page 241, the credit for the discovery of diphtheria antitoxin is given to "Roux of Lille." Roux, who is from the Pasteur Institute of Paris and not from Lille, gives the credit of this discovery to von Behring, and correctly so.

We have seen no book of this sort which can with greater confidence be recommended to health officers and physicians. It is well printed and well illustrated with charts, diagrams and tables. It is not encyclopedic and not intended as a book of reference but a handbook which is particularly strong on the practical side. It has no superior that we know of in its class. M. P. RAVENEL

BOOKS RECEIVED

THE ESCAPE FROM THE PRIMITIVE. By Horace Carncross, M.D. New York: Scribner, 1926. 348 pp. Price, $2.50.

FOUR ESSENTIALS OF EDUCATION. By Thomas Jesse Jones. New York: Scribner, 1926. 188 pp. Price, $1.50.

WHAT'S BEST TO EAT? By S. Henning Belfrage, M.D. New York: Wm. Wood, 1926. 199 pp. Price, $3.00.

PROCEEDINGS OF EIGHTH TEXAS WATER WORKS SHORT SCHOOL. Fort Worth: Texas Section S. W. Water Works Association, January 18–23, 1926. 186 pp. Price, cloth, $2.50, paper, $1.25.

PROCEEDINGS OF THE SIXTH INTERNATIONAL NEO-MALTHUSIAN AND BIRTH CONTROL CONFERENCE. Volume III. Medical and Eugenic Aspects of Birth Control. Edited by Margaret Sanger. New York: American Birth Control League, Inc., 1926. 247 pp.

MALIGNANCY AND EVOLUTION. A Biological Inquiry into the Nature and Causes of Cancer. By Morley Roberts. London: Eveleigh Nash & Grayson, 1926. 319 pp. Price, 18s.

TEXTBOOK OF PUBLIC HEALTH. 9th Ed. By E. W. Hope, O.B.E., M.D., D.Sc., and C. O. Stallybrass, M.D., D.P.H. Edinburgh: E. & S. Livingstone, 1926. 340 pp. Price, 15s.

ELEMENTS OF CHILD TRAINING. By R. J. Gale. New York: Holt, 1926. 299 pp. Price, $2.25.

THE NEW HANDBOOK OF HEALTH. By Woods Hutchinson, A.M., M.D. Boston: Houghton Mifflin, 1926. 410 pp. Price, $.96.

NEWSPAPERS IN COMMUNITY SERVICE. By Norman J. Radder. New York: McGraw-Hill, 1926. 269 pp. Price, $3.00.

BACTERIAL INFECTION WITH SPECIAL REFERENCE TO DENTAL PRACTICE. By J. L. T. Appleton, Jr. Philadelphia: Lea & Febiger, 1925. 474 pp. Price, $6.00.

PROTOZOOLOGY. A Manual for Medical Men, Veterinarians and Zoologists. By C. M. Wenyon. New York: Wm. Wood, 1926. 1563 pp. Two volumes. Price, $25.00.

CLINICAL PEDIATRICS. By John Lovett Morse, M.D. Philadelphia: Saunders, 1926. 848 pp. Price, $9.00.

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INTELLIGENT PARENTHOOD. Proceedings of the Mid-West Conference on Parent Education, March 4, 5 and 6, 1926. The Chicago Association for Child Study and Parent Education. Chicago: University of Chicago Press, 1926. 326 pp. Price, Cloth $2.00; Paper $1.00.

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HEALTH DEPARTMENT REPORTS

IRA V. HISCOCK

Providence, R. I.—Two valuable reports have been received from Providence. One of these is the seventy-first annual report upon the births, marriages, and deaths in the city for the year 1925, and includes tables for 70 years. Public health workers and statisticians who always welcome Dr. Chapin's contributions will be especially interested in this report of 124 pages, as well as in the forty-third annual report of the Superintendent of Health.

A birth rate of 23.4 and a death rate of 12.32 per 1,000 population are recorded for 1925. An infant mortality rate of 63 per 1,000 living births is noteworthy. The District Nursing Association employed 17 baby nurses, who had 2,940 babies under one year of age under supervision during the year, the home visits numbering 41,792 in addition to 4,626 prenatal visits. Twelve child welfare stations are carried on by the Providence Child Welfare Committee. The examining physicians are engaged and paid by the health department. The new babies admitted to the stations during the year numbered 1,959, and the total number of visits made by all babies was 12,505. The total births, exclusive of stillbirths, numbered 6,281 for the year in this city of 268,400 population. It is pointed out that formerly the chief causes of infant mortality were the diarrheal diseases, but a table for a 70-year period shows a phenomenal decrease from 252.2 per 100,000 living in 1856–1865, to 42.4 in 1916–1925.

Health supervision of school children, begun in 1904 with two physicians, was carried on in 1924–25 by a staff of 8 physicians, 15 school nurses, 1 dentist, 2 oculists, 1 psychiatrist, and 1 psychiatric social worker. During the last school year, 12,582 routine and 4,619 special examinations were made, and 9,457 children, 54 per cent, were found to have defects. The total defects found numbered 11,913, the number for which treatment was advised being 10,034. Treatment was secured in 79 per cent of the instances in which it was advised—an excellent record.

Another interesting feature of the health department report is the carefully prepared financial statement, in which the items of expenditure are classified in detail according to functions, salaries, and other important items. The total expenditures for 1925 amounted to $202,482. A similar financial statement by the city registrar shows an expenditure for statistical work of $14,822 with receipts amounting to $3,516.

These reports deserve careful study as they contain much information concerning public health affairs. There are many valuable statistical tables, accompanied by descriptive text. The front cover of the health report is well arranged; the organization of the board and of the staff is given on an introductory page, followed by a table of contents, while the first page of the main report contains data concerning population, births, deaths, and marriages. The reports are well printed.

Baltimore, Maryland—The activities of the various divisions of the Baltimore department of health are well outlined in the 1925 report, which consists of 297 pages, including a table of contents and a classified index. On the first page of the main report, in the first sentence, one is informed that the estimated midyear population was 796,296, of which the white persons numbered 678,365, and the colored persons, 117,931. The crude death rate was 14.63; the rate for the white being 12.84, and for the colored 24.89. The specific death rates are notably higher for colored than for white persons from the following causes: typhoid, whooping cough, diphtheria, influenza, and pneumonia, tuberculosis, and diarrhea and enteritis under 2 years, chronic nephritis, congenital malformations, and accidents. Death rates from suicides are considerably higher for white (12.97) than for colored persons (6.78); but death rates per 100,000 from homicide are 8 times as high among colored (40.70) as among white persons (5.02).

Under new work of the year it is noted that special campaigns have been waged against gastroenteritis and dysentery. It is also observed that inspection and licensing of maternity and lying-in hospitals has been undertaken by the commissioner. A comprehensive plan has been developed of establishing diphtheria immunization centers for preschool children throughout the city, in Babies' Milk Fund

Association Clinics and public schools, 30 such clinics having been established.

The city has been divided into 4 districts for supervisory work in nursing. Two supervisors do all the teaching of new nurses and during the latter part of the year a new nurse was placed in each branch of the work for 1 month each before placing her in a district where she was held responsible for tuberculosis, minor communicable disease and school nursing.

New Zealand—The Director-General of Health of New Zealand has rendered his annual report for the year ended March 31, 1926. It is stated that rarely in the history of the department has such impetus been given to reforms leading to improvements in preventive medicine. It is considered, "better policy to teach people to live healthily and to prevent disease than it is to treat them as irresponsible units for whom care has to be provided."

A crude death rate of 8.29 per 1,000 population was recorded for the year, the "International Standardized" rate being 8.67. The infant mortality rate for the year was 39.96 per 1,000 births, as compared with 40.2 in 1924. "The maternal mortality rate, 4.65 per 1,000 births, reveals a gratifying fall." In contrast, infant mortality under one month seems to have manifested no improvement. It is believed that the educational work of the antenatal clinics will have a beneficial effect in this connection.

Considerable interest has recently been manifested in the program of maternal welfare in New Zealand, and several pages of the report are devoted to a careful analysis of the problems and activities of the department. It is noteworthy that by the Nurses Registration Act, which has recently become law, two types of personnel have been created—midwives, and maternity nurses. Control of registration is vested in a board, and provides for the training and registration of the maternity nurse, who, while undergoing much the same course of training as the midwife, is not qualified to attend maternity cases without the supervision of a medical practitioner. Attention is being given to the important problem of proper training of midwives and of medical students, and to post-graduate courses for medical practitioners. District maternity hospitals under management of hospital boards are considered of great advantage to the community. Maternity hospitals are regularly inspected by the department.

Among the preventive measures of the school hygiene program are listed provisions for health camps, nutrition classes, and open air schools. The work of mapping out areas where goiter is endemic has been practically completed. At present approximately 12,000 children are receiving treatment, facilities being provided by which the pupils in all schools in endemic areas may obtain iodine treatment, the written consent of their parents being first obtained. The usual routine treatment consists in the administration of one grain of potassium iodide weekly for ten weeks in the school term, the total amount given to the children annually being thus thirty grains. Advice is also given that the diet should contain a plentiful supply of fresh fruit and vegetables, and that health habits should be observed. "In view of the possibility that iodine may do harm when given in unsuitable cases, no school treatment for the prevention or cure of goiter is carried out except with the recommendation of the family medical practitioner or the school medical officer."

The report occupies 56 pages, 8" x 13" in size, and is well printed in readable type. Individual reports of different directors of special activities are interesting, and contain statistical tables worthy of study. A classified table of contents precedes the main report, which concludes with a full-page photograph of the health exhibit at the New Zealand and South Seas Exhibition, Dunedin.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Anon. The Scituate Water Supply Project for Providence, R. I. *Am. City*, 35:3 (Sept.), 1926.

A description of the water storage facilities and purification plant for Providence, now nearing completion.

ALDERSON, P. F. The Incidence of Venereal Disease in the Royal Navy. *J. State Med.*, 35:9 (Sept.), 1926.

This annual statement reports an improvement in the venereal disease situation, due (according to the author) to better social service, more preventive education, and self disinfection. The value of the last factor is not reflected in the statistics, which show instead the difficulty in inducing persons to apply early treatment.

BALL, E. B. Results of Physical Examination of Normal College Pupils. *Illinois Health News*, 12:9 (Sept.), 1926.

An interesting résumé of a study of student health—goiter is the outstanding physical defect, and neglect of vaccination is found to be common.

BARROW, W. H. Group Susceptibility to Acute Upper Respiratory Tract Infections. *Jour. A. M. A.*, 87:12 (Sept. 18), 1926.

Negative findings in a study of incidence of "colds." Sex is the factor of greatest significance of any observed.

BLISS, E. A. Anaerobic Spore-Bearing Bacteria in Baltimore Milk. *Am. J. Hyg.*, 6:5 (Sept.), 1926.

Clostridia tertium, sporogenes, welchii, and *bifermentans* were isolated from market milk in Baltimore. The technic is described.

COLBY, W. The Control of Scarlet Fever in Institutions by Active Immunization with Toxin Detoxified with Sodium Ricinoleate. *Jour. A. M. A.*, 87:12 (Sept. 18), 1926.

A brief account of total prevention of scarlet fever by means of prophylactic immunization of all susceptibles with the preparation named.

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A note reporting the lack of medicinal value of natural water containing radioactive substances.

CUMMING, H. S. International Sanitary Conference Advances. *Nation's Health*, 8:9 (Sept.), 1926.

A résumé of the history of international quarantine regulation, and a story of the recent international conference.

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In Milwaukee 40 per cent of a group of pregnant women had visible goiter. The administration of iodin during pregnancy is suggested.

FELLERS, C. R. A Bacteriological Study of Canned Salmon. *J. Bact.*, 12:3 (Sept.), 1926.

A study of 7,664 cans of salmon resulted in the isolation of 3 spore forming aerobes, 17 micrococci, 16 non-sporulating bacilli, 7 obligate anaerobes, and (rarely) yeasts, molds, and actinomyces. The evidence is, however, that food poisoning from salmon is rare.

GRAHAM-ROGERS, C. T. Safety in Industry Through Visual Education. *Ind. Hyg. Bull.*, N. Y. State Dep't of Labor, 3:3 (Sept.), 1926.

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A general statement of principles of water supply, purification, and distribution.

KAISER, A. D. Tonsillectomy in Children. *Jour. A. M. A.*, 87:13 (Sept. 25), 1926.

A laudable attempt to evaluate tonsillectomy by comparing the after effects in a group operated upon with a similar group supposed to need treatment, but who refused operation. More of this kind of study is needed.

KERSHAW, J. B. C. Refuse Disposal Practice in Six British Municipalities. *Eng. News-Record*, 97:14 (Sept. 30), 1926.

Descriptive of the several processes by which combustible material is used in heat producing destructors. Refuse is used for filling and as fertilizer.

LARKUM, N. W. Bacteriophagy in Urinary Infection. *J. Bact.*, 12:3 (Sept.), 1926.

Part I is a record of studies of urinary infections resulting in the finding of the phage and susceptible *B. coli* in about a quarter of the urines examined: four patients were subjected to treatment with the phage. Part II deals with correlated experimental studies in animals.

LUDIN, G. Visualizing Our Body's "Stock-in-Trade" and the Carbon Monoxid Menace. *M. Woman's J.*, 33:9 (Sept.), 1926.

A description of the important blood constituents and the effect of carbon monoxide upon them.

MADDOCK, C. The Production and Distribution of Grade A (Tuberculin Tested) Milk. *J. State Med.*, 35:9 (Sept.), 1926.

A discussion of the grading of milk in England. Of interest because the paper shows how universal is the problem which is so vexing to American sanitarians.

McDONALD, B. W. Consolidation of Louisville Health Groups Broadens Scope. *Nation's Health*, 8:9 (Sept.), 1926.

The Public Health Nursing Association assumes the prenatal, postnatal, child health work, and supervision of cases of communicable diseases, in addition to bedside nursing. We presume the Louisville Health Department still has plumbing inspection left.

McINTOSH, J. A. The Etiology of Granuloma Inguinale. *Jour. A. M. A.*, 87:13 (Sept. 25), 1926.

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A study of about 2,000 Cincinnati school children which reveals that children with normal thyroids are physically superior (as evidenced by certain measurements) to children with goiter.

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SHERE, L. and FERGUSON, H. F. Milk Pasteurization in Illinois in 1926. *Ill. Health News*, 12:9 (Sept.), 1926.

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SIMON, C. E., and BECK, M. D. A Study of the Indol Tumor of Carrel in Reference to Gye's Hypothesis Regarding the Origin of Malignant Growths. *Am. J. Hyg.*, 6:5 (Sept.), 1926.

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SMILEY, D. F. Seasonal Factors in the Incidence of the Acute Respiratory Infections. *Am. J. Hyg.*, 6:5 (Sept.), 1926.

Another study of the relationship of temperature and moisture and "colds."

SOPER, G. A. The Key-Man in Cancer Control. *Boston M. & S. J.*, Aug. 26, 1926.

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SYDENSTRICKER, E. A. Study of Illness in a General Population Group. *Pub. Health Rep.*, 41:39 (Sept. 24), 1926.

A second paper on morbidity studies in Hagerstown, conducted over a period of 28 months. A very valuable contribution to our knowledge of the incidence of "sickness."

Special Sub-Committee of the Committee on Public Health Relations. Carbon Monoxid Poisoning and the Automobile Exhaust. *Bulletin N. Y. Academy of Med.*, Aug., 1926.

A review of the literature on the subject which shows a lack of agreement on the nature of carbon monoxid poisoning, and the importance of safeguarding the public from this health hazard.

TAPPAN, J. W. Protective Health Measures on the United States-Mexico Border. *Jour. A. M. A.*, 87:13 (Sept. 25), 1926.

The story of the attempt to prevent the introduction of typhus fever, smallpox, yellow fever, and other quarantinable diseases from Mexico into the United States.

THEOBALD, G. W. For Drastic Reforms in the Teaching and Practice of Midwifery. *Lancet*, 2:13 (Sept. 25), 1926.

The statistics of maternal mortality in Great Britain indicate the need for better midwifery. The author proposes more thorough instruction, stricter rules about abnormal conditions, and adequate supervision. An editorial in the same issue compares the status of midwifery in the United States and Great Britain—an interesting discussion.

TOBEY, J. A. Public Health in State Constitutions. *Pub. Health Rep.*, 41:39 (Sept. 24), 1926.

A brief note of references to public health in nine state constitutions.

TREDGOLD, A. F. The Place of Inheritance in Preventive Medicine. *J. Royal San. Inst.*, 47:3 (Sept.), 1926.

The author quotes statistics which, he thinks, indicate a disquieting state of public health and argues the importance of inheritance as a factor in susceptibility to disease; the result is a plea for the inclusion of eugenics as a part of the sanitary program.

WATSON, S. H. The Use and Abuse of Heliotherapy in Tuberculosis. *Jour. A. M. A.*, 87:13 (Sept. 25), 1926.

A warning against the indiscriminate use of the sun in the treatment of tuberculosis, together with a statement in regard to when such treatment is indicated and how to administer it. A timely warning.

WOOD, F. C. Use of Colloidal Lead in the Treatment of Cancer. *Jour. A. M. A.*, 87:10 (Sept. 4), 1926.

Dr. Wood says, "the results of Blair Bell's years of labor are a remarkable contribution to the therapy of inoperable cancer." The paper reviews the studies preceding Professor Bell's work, and tells of his reports on the treatment of malignancy with colloidal lead.

WYMAN, E. T., et al. A Comparison of the Antirachitic Potency of Irradiated Cod Liver Oils. *Boston M. & S. J.*, 195:11 (Sept. 9), 1926.

Cod liver oil irradiated for varying intervals was fed to rats to determine its antirachitic properties. Little, if any, difference was found, the results being inconclusive.

PUBLIC HEALTH NOTES

DeLamar Institute of Public Health—The DeLamar Institute of Public Health established at Columbia University and maintained from the income of the DeLamar Endowment Fund has opened its year of formal instruction for students of public health, experienced health workers seeking advanced education, and individuals especially interested in doing some specific research in public health.

The Institute of Public Health is now an integral part of the School of Medicine of Columbia University, and includes the Departments of Epidemiology, Industrial Physiology, Industrial Medicine, Public Health Administration and Sanitary Science.

The following is a brief description of the purpose and eligibility for admission to the Institute:

It is the purpose of the Institute of Public Health to provide for students of medicine that element in their education which bears upon the preventable diseases and the individual and social measures for their prevention; to contribute to the training of graduate nurses in the public health relations of their profession in association with the Department of Nursing and Health at Teachers College; to offer a complete curriculum in the theory and practice of preventive medicine leading to the degree of Master of Science on recommendation by the Faculty of Medicine; to provide leadership and guidance for graduate students in public health sciences who are candidates for the degree of Doctor of Philosophy; to participate in the offering of courses under University Extension and Home Study to persons unable to attend other courses in the University; to extend to the lay public through existing channels of popular education the benefits of reliable information in the protection and development of human health and in the prevention of disease, as specifically directed in the will of the late Joseph P. DeLamar, whose legacy for teaching and research in the medical sciences made the creation of the Institute of Public Health possible.

Students in public health other than those holding a degree of Doctor of Medicine, or a degree of Bachelor of Arts or Bachelor of Science for which they have completed adequate courses in the fundamental sciences of biology, bacteriology, chemistry, physics and mathematics, will be admitted to any of the courses for which they are qualified but they are not accepted as candidates for a degree. No degrees or diplomas in public health are offered by the University except those of Master of Science and Doctor of Philosophy.

The Institute of Public Health offers to properly qualified applicants a course of study extending over at least one calendar year, including three months of practical field, laboratory or administrative work during the Summer Session, and leading to a degree of Master of Science. The facilities of the Institute are furthermore available to any other qualified person desiring to pursue a more limited and specialized course of study.

Further information regarding the courses of study and requirements for degrees can be obtained by communicating with the Director of the DeLamar Institute of Public Health, 437 West 59th Street, New York City.

Frank Davis Preston Joins Staff of P.C.A. of Pennsylvania—Frank Davis Preston has joined the staff of the Public Charities Association of Pennsylvania as Western Pennsylvania Representative with headquarters at 1324 Fulton Building, Pittsburgh. Mr. Preston organized and was the first executive of the Community Fund and Council of Social Agencies of Fort Wayne, Indiana, and for two years has been director of the Omaha Welfare Federation and Community Chest.

Therapeutic-Industrial Workshop for Girls—The Vocational Adjustment Bureau, 336 East 19th Street, New York City, has recently opened a therapeutic-industrial workshop for the rehabilitation of nervous girls and women. The workshop plans to form a bridge, as it were, between recovery from mental illness and reëntrance into industry. In some instances, where an early diagnosis of an imminent breakdown has been made, the therapeutic-industrial workshop has functioned as a preventive measure.

The Vocational Adjustment Bureau is a non-sectarian, non-commercial employment agency for the maladjusted girl, whether due to subnormal intelligence, emotional instability, marked psychopathic nature, or failure to conform to social or economic standards.

In addition to the placement department of the bureau which attempts to overcome these maladjustments by placing the applicants in

positions best suited to their mental and emotional capacities, the bureau maintains a research department which makes surveys, studies, analyses and experiments to aid scientifically in the vocational guidance given and the placements made.

Saskatchewan Health Officials Association—The first annual convention of the Saskatchewan Health Officials Association was held at the University Building, Saskatoon, September 22, 1926.

Some 40 delegates registered from all points of the province and the officials of the association are enthusiastic regarding the addresses which were given and the discussion which followed the papers.

Dr. Arthur Wilson of Saskatoon in his presidential address stressed the necessity of the educational factor in public health work and considered that greater coöperation with the press would further the efforts which all health officials were making to educate the public in modern methods of disease prevention.

The next meeting of the association will be held in the City of Regina in 1927.

The secretary reported that there were already 81 members in the association which included medical health officers, public health nurses, public health engineers, sanitary officers, laboratory workers and veterinary officials.

Professor Buice Goes to University of Oklahoma—Professor W. A. Buice, a member of the American Public Health Association, and vice-president of the Texas Association of Sanitarians, has resigned as head of the Department of Zoölogy and Public Health at Baylor University, Waco, Texas, to become Professor of Bacteriology and Hygiene at the University of Oklahoma.

Professor Buice has done much to promote public health activities in Texas. For two years he has been conducting an investigation to determine the possibility of waiters in the cafes, restaurants and soda fountains in Waco to transmit typhoid fever to their customers.

The New York State Commission on Ventilation—The Commission has recently opened an office at 370 Seventh Avenue, New York. Its original members, who were commissioned by the Governor of the State of New York in 1913, continue to serve. These are: C.-E. A. Winslow, Dr.P.H. (Chairman), D. D. Kimball, Frederic S. Lee, M.D., James Alexander Miller, M.D., Professor Earle B. Phelps and Professor Edward L. Thorndike. Thomas J. Duffield has become associated with the Commission in the capacity of Executive Secretary. The Commission, which conducted a series of carefully controlled experiments on an elaborate scale over a period of several years, published in 1923 an exhaustive report of its findings. It now intends to assume again an active rôle in the research field and to become a clearing house for the dissemination of information on ventilation. Its work, as in the previous years of its existence, is being financed by the Milbank Memorial Fund of New York.

Delta Omega—Seventeen members of Delta Omega breakfasted together in the Statler Hotel on October 13 during the annual meeting of the American Public Health Association. The first formal meeting of the national council of the fraternity was held at that time. First steps were taken in securing minor modifications of the constitution, and plans for increasing the usefulness of the fraternity and stimulating scholarly attainment in public health were discussed.

The members present at the breakfast were: C.-E. A. Winslow, James A. Tobey, Lawrence E. Poole, Nathan Sinai, Ira V. Hiscock, W. F. Walker, Murray P. Horwood, John A. Ferrell, Roy W. Pryer, Carl E. Buck, George T. Palmer, Doris A. Murray, J. Roslyn Earp, Huntington Williams, C. E. Turner, Homer N. Calver, Henry F. Vaughan.

Texas Short School—The ninth Short School of the Texas Section of the Southwest Water Works Association will be held in Dallas, Texas, January 24–30. Instruction will be given in perfecting a safe and efficient water service, the relation of water to health, water aeration, sewer problems, milk sanitation and other public health matters.

H. H. Gowins, water commissioner of Dallas, has been made general chairman of arrangements; O. M. Bakke, superintendent of filter plants, Dallas, is director of the school; and V. M. Ehlers, chief sanitary engineer of the state board of health, secretary. A number of speakers of National prominence in public health work will be featured on the program.

LABORATORY

C. C. YOUNG

A RECONSTRUCTED ARNOLD STERILIZER ASSEMBLY

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THE COMMON board of health type of Arnold Sterilizer used with a gas stove has the serious disadvantage that someone is almost certain eventually to forget to replenish the water or to turn out the gas, with the result that it boils dry. The next time it is filled, it leaks where the solder melted. Although such damaged sterilizers can be resoldered the double bottom makes a satisfactory repair difficult.

The writer made one effort[1] to prevent the difficulty by the use of an automatic water supply, with siphons to maintain a constant level in a battery of connected sterilizers. Bioletti[2] had also devised a somewhat similar scheme, at that time unknown to me. But the siphons are rather unsatisfactory; they frequently lose their seals because air driven out of the water by heat collects in them. At the suggestion of Barnes[3] we ultimately gave up the siphon arrangement at the University of California, discarded the gas stoves, connected each unit with a live steam jet, and fastened a small pipe into the side of each pan to drain the overflow due to condensation, a plan which worked very well with intact sterilizers.

I recently conceived an idea for salvaging four sterilizers whose bottoms were entirely beyond repair. The pans were removed by a tinner and the sterilizing chambers were riveted together as shown in Figure I. New cones were constructed for each chamber, and solidly fastened. The chambers are supported by the cones in a boiler pan, but the cones are not fastened to the pan; the upper portion can therefore be easily removed for repair if this becomes necessary.

The pan was constructed of 16 oz. sheet copper, with four compartments formed by low partitions between each two sterilizers. The weight of the sterilizers rests loosely upon these partitions and upon a flange running entirely around the inside of the pan. The pan is 6 inches deep and the flange and the tops of the partitions are 4 inches from the bottom. There is an inlet pipe (A) for water at one end of the pan, and an overflow (B) at the other just above the flange. Each compartment in the pan is provided with a single steam pipe running around its lower perimeter. In the illustration the upper pipe (C) is the feed line carrying steam at 30 to 35 pounds pressure. The lower pipe is connected into the return main by means of a No. 8 Hoffman Return Line Valve (D).

RECONSTRUCTED ARNOLD STERILIZER ASSEMBLY

Any number of sterilizers might be connected in such an assembly and each operated individually, or any, or all, collectively as desired. The steam boils the water in each compartment from which the steam is then collected by the cone and directed into the sterilizing chamber. The water covers the edges of the cones and prevents any serious loss of steam. The amount of steam generated from the boiling water is controlled by the amount of steam admitted to the heating coil. The temperature depends of course upon the altitude; that of Denver being 5280 feet above sea-level, water boils at about 94° C. The condensate falls back into the pan as in the original apparatus. The amount of fresh water required depends upon

the inevitable loss around the doors and at the margin of the cones; it is small. Even if the pan boiled dry, the apparatus would not be damaged.

The cost of construction was as follows:

Tinner's material (27½ lbs. 16 oz. copper)	$9.35
Tinner's labor	25.63
Steam-fitter's material	24.49
Steam-fitter's labor	15.32
Carpenter's material for stand	6.97
Carpenter's labor on stand	12.50
Total	$94.26

The above may be compared with the cost of four new Arnold Sterilizers and the necessary gas stoves as follows:

4 new Arnold Sterilizers — Board of Health type quoted at $71.50	$286.00
4 gas stoves quoted at $2.50	10.00
Total	$296.00

We have effected a saving of over $200.00 and have a better equipment than can be bought in the open market.

An alternate design to utilize steam directly from the feed line in the sterilizing chambers as at the University of California and at Cornell University was considered. There would doubtless be a considerable saving in expense for steam-fitting, but the writer has observed at both places that certain lots of culture media failed to support bacterial growth under conditions which strongly suggested that some germicidal substance had been derived by these media from the steam in which they were sterilized, though it was never possible to prove this with certainty. The difficulty was most marked with media sterilized in autoclaves which were connected directly with the steam lines. Chlorine used in the purification of the water supply was particularly under suspicion. At Ithaca, chlorine was frequently conspicuous to taste and 1 c.c. samples from the laboratory taps rarely showed any colonies at all in a petri dish of agar incubated for several days at 37° C. These observations suggested that volatilization of chlorine in steam boilers may be a factor which should be considered by the bacteriologist in the cultivation of delicate germs on media sterilized in equipment connected directly with the steam lines.

Another suggestion is that volatile boiler compounds used to prevent boiler scale may inhibit bacterial growth. Unless these possibilities can be excluded it seems best to avoid the use of steam directly from the lines in all equipment used to sterilize bacterial culture media. This certainly prevents any interference from volatile boiler compounds though it does not avert the danger from chlorine that may be present in the steam evaporated from the boiler pan of the sterilizer.

Weekly tests for chlorine conducted by Dr. Severance Burrage over a period of 14 months by the ortho-toluidine method in our laboratories at the University of Colorado Medical School have shown occasionally 0.07 to 0.10 parts per million, but generally and particularly since the completion of a new filter plant by the City and County of Denver, not even a trace. The likelihood of a sufficient amount of chlorine finding its way into culture media sterilized in the Arnold Sterilizer would seem slight; in case of trouble attributable to chlorine the chamber nearest the water inlet might be used, not for sterilization, but for volatilization of the chlorine, so that the remaining chambers would be filled with steam from water whose more volatile constituents had already been eliminated by boiling before it overflowed from the first into the others.

SUMMARY

A compact assembly of discarded Arnold Sterilizers is described, which effected a considerable saving over the cost of new ones. High pressure steam is used to evaporate tap water and the suggestion is made that volatile antiseptic compounds, notably chlorine, in the city water supplies, or unknown substances in boiler compounds, may be responsible for certain failures of culture media when steam is used directly from the lines for sterilization. The assembly described may be utilized to obviate this difficult by volatilizing antiseptic substances from the water used to produce the steam employed for sterilization.

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SOME OF THE LABORATORY ASPECTS OF SHELLFISH CONTROL

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WHILE the above title might suggest a dissertation on the usefulness of laboratory examination of shellfish, as ordinarily employed, it is the purpose of this article to sound notes of warning to those whose tendency is to approve or condemn shellfish on the evidence presented by bacteriological findings only.

The bacteriological examination of shellfish plays an important part in shellfish sanitation, but should be used jointly with thorough sanitary inspection of shellfish producing areas, with the liberal application of sound sanitary common sense in interpreting the results and in applying administrative measures.

There are four possible methods of determining the probable pollution of shellfish, viz:

1. Sanitary inspection
2. Bacteriological examination of the shellfish
3. Bacteriological examination of the water from which the shellfish are taken
4. Any combination of two or more of the above methods

The third method is applicable only in the examination of shellfish areas; the first two should be used jointly in determining the sanitary conditions of growing areas and of the conditions under which the product is handled after it is removed from the beds. If only one method can be employed, that of sanitary inspection is recommended. However, examinations to check or confirm the findings of inspections are an invaluable aid, especially in doubtful cases.

Probably in no field of laboratory endeavor will the laboratory worker find as widely varying results as in the determination of the pollution index of shellfish by use of tests for the presence of members of the coli-aerogenes group. The cause of this wide variation cannot always be explained. However, such variations have been experienced by all who have worked in this field, and many such workers are men of more than average ability.

UNIFORM METHODS DESIRABLE

Any deviation from a standard technic may produce results so different from those obtained by the standard procedure that it would scarcely be believed that the respective reports represented results from the same sample. For this reason it is urged that the *Standard Methods for the Bacteriological Examination of Shellfish*, published by the American Public Health Association,* be followed in order to promote uniformity and render the results of different workers comparable. The *Standard Methods* are used by the U. S. Public Health Service, and other methods, if used, are compared to the *Standard Methods*.

Recently the author had a rather long discussion with a worker well experienced in shellfish laboratory work as to the merits of the method of examination of each individual of a sample of five oysters, when compared with the method of pooling the shell liquor of the oysters and examining this composite sample, as prescribed by *Standard Methods*. In order to prove or disprove contentions for or against each method, it was decided to examine simultaneously a number of oysters by both methods.

The oysters were taken from a moderately polluted area when the temperature was about 5° C., or approximately the temperature at which the phenomenon of hibernation is supposed to occur. Oysters were examined in groups of five by taking, with a sterilized pipette, sufficient shell liquor directly from the cupped half of the shell of each oyster, and planting this liquor in 1 c.c., 0.1 c.c., 0.01 c.c., and 0.001 c.c. quantities. The remainder of the liquor was poured into a sterile bottle to form the composite sample for planting according to *Standard Methods*. To give the full protocol of all these tests would require more space than is available here, but the results obtained from one group of five oysters are given below as illustrative of the results.

INDIVIDUAL METHOD

Oysters	1 c.c.	0.1 c.c.	0.01 c.c.	0.001 c.c.	
1	+	—	—	—	
2	—	—	—	—	
3	—	—	—	—	
4	+	+	+	+	
5	—	—	—	—	Score 5

STANDARD METHOD

	1 c.c.	0.1 c.c.	0.01 c.c.	0.001 c.c.	
Composite liquor of the five oysters used above	+	+	+	+	Score 5,000

* Reprint from A.J.P.H., July, 1922.

It is evident that oyster 4 contained sufficient *B. coli* to throw the results from the composite sample upward above the accepted score limit of 50. If these five oysters had been the only group showing similar results, it might not have been significant. But numerous samples of five oysters each, examined by the individual method, showed the presence of *B. coli* in sufficient numbers in at least one oyster of every sample to render it certain that the oysters were taken from a polluted source. It appeared that, under the conditions of the experiment, about 20 per cent of the oysters were highly polluted.

Although the scores given in the case cited above show a variation much greater than in most of the samples examined by both methods, the sample was chosen as the most striking illustration of the point desired to be brought out. Of twenty-four samples of five oysters each, the score obtained by the individual method was greater than that obtained by the standard method in two samples, and the scores by the two methods were equal in two other samples. Twenty samples scored higher by the *Standard Methods* than by the individual method. The average of the twenty-four individual method scores was 46; by the *Standard Methods* the average of the scores of the samples was 641. The minimum score by the individual method was 2; the maximum, 230; by the *Standard Method* the minimum score was 4; the maximum, 5,000.

The results described above indicate that the shellfish examined would be passed as a marketable product if reliance was placed on the results of the score of the individual method alone. They would likewise be condemned if only the score of the *Standard Methods* was considered.

For the information of the reader, the following supplementary information is given. The water from which these oysters were taken constantly shows the presence of *B. coli* in 1 c.c. quantities, and in about 50 per cent of the tubes seeded with 0.1 c.c. At times it shows 1,000 *B. coli* per c.c. The point from which the samples were taken is about four miles from the most populous portion of an urban area of about 200,000 population, and about one mile outside the geographical city-limit of the nearest city. The area from which they were taken is classed as dangerously polluted grounds, and the taking of oysters therefrom for food purposes is prohibited. All oysters were taken from a small area about eight feet square, marked by stakes to insure the obtaining of all samples from the same spot.

It seems quite evident that, regardless of the merits of each of the methods of examination, the comparison of the results of shellfish scores should be made only when uniform methods of examination and scoring are used.

INCREASE IN SCORE DURING STORAGE

It is a very common occurrence to have high scores of shellfish from sources classed as safe reported from various cities to which such product has been shipped. Even the same lot, when examined at point of shipment and at destination, may show widely varying scores. The writer has examined a number of samples, taking equal portions on successive days. The results indicate that the score of shucked oysters may increase for several days after packing, even though kept at refrigerating temperature. A smaller number of examinations of shell stock suggest that such increase may also take place when shipped in the shell. Whether this increased score is due to growth of *B. coli*, the discharge of polluting material from the intestinal tract of the oyster, a change in the oyster mucus by which clumps of bacteria are broken up, or by a combination of two or more factors, has not been determined. However, it seems very evident that sole reliance upon bacteriological examinations may lead to seemingly inconsistent action.

For instance, a boat load of oysters may be divided into several shipments. Some of the oysters are shipped at once, and others are held until the following day. Those shipped on the second day will probably score higher than those shipped on the first day. Perhaps the score of the second day's shipment will be above 50, that of the first day's shipment 50 or below. If only the bacteriological score is considered, a sanitary authority would apparently approve a portion of a boat load of oysters and condemn the other portion. For such reason the advice of Wachter,[1] "that the results of laboratory examinations of oysters should be interpreted in the light of a knowledge of the conditions under which the oysters are produced and handled," is repeated here.

EXAMINATION OF WATER DESIRABLE

It is the practice of some shellfish laboratory men to examine only samples of shellfish from an area, in determining whether said area should

1. Wachter, Leonard M. Laboratory Aspects of Oyster Pollution. *A.J.P.H.*, 15, 12:1068 (Dec.), 1926.

be approved or condemned. It is strongly urged the examination of the water over such bed be made a part of the examination. For purposes of comparison of the *B. coli* content of the water from which the shellfish are taken, with that of the shellfish, the shellfish laboratory of the U. S. Public Health Service examines the water by the same method employed in examination of the pooled liquor of the shellfish sample. At least fifteen tubes are seeded, five with 10 c.c. each, five with 1 c.c. each, and five with 0.1 c.c. each. In case higher dilutions are thought necessary, five tubes are seeded in each dilution. In this way a score of the water is obtained that is comparable with that of the shellfish. The following tables illustrate the method of scoring.

WATER SAMPLE

Tube	10 c.c.	1 c.c.	0.1 c.c.	0.01 c.c.	Values
1	+	+	+	—	10
2	+	+	+	—	1
3	+	—	—	—	1
4	+	+	—	—	1
5	+	+	—	—	1
				Score	14

OYSTER SAMPLE

Tube	1 c.c.	0.1 c.c.	0.01 c.c.	0.001 c.c.	Value
1	+	+	+	—	100
2	+	+	—	—	10
3	+	+	+	—	10
4	+	—	—	—	10
5	+	+	—	—	10
				Score	140

It is my belief that a reasonably efficient sanitary standard for the water in which shellfish are grown or floated can be determined. If honestly and conscientiously applied, I believe such standard will give us as satisfactory results as any shellfish control procedure that can be prescribed. We know that shellfish live in water, maintain their respiratory metabolism in water, and gather their food from the water. We know from experimental work that if bacteria are placed in the water which oysters pass through their gills, a portion of these bacteria are taken into the intestinal tract of the oyster. In other words, if there are pathogenic bacteria in the water, the oysters become a danger to the health of anyone who may consume them without subjecting them to some sterilizing process. If, then, we can find evidence of pollution of this water to a degree that renders the consumption of the oyster dangerous to health, we are justified in prohibiting the use of such areas for the growing of oysters for food purposes. This would require repeated examinations of the water to discover cases where pollution might be intermittent.

It is generally conceded by all shellfish laboratory workers that low scores may be found at times in shellfish taken from polluted waters. Under the method of relying on shellfish scores alone, such shellfish are rated the same as low scoring shellfish from unpolluted waters. Sanitary common sense tells us that such rating is unfair and misleading—and perhaps fraught with danger.

The writer does not advocate the substitution of another standard for our present one. He does urge that water examinations be added to the present procedure, in order that laboratory data may be obtained which will be useful in forming an opinion as to the hazards existing in shellfish-growing areas. If the water and the shellfish are examined side by side by a sufficient number of workers and for a sufficient period, to determine the relative value of each set of results, we may then consider a change of standard, if the results show it is desirable.

OTHER PROBLEMS

There are other questions for the laboratory worker to consider in the bacteriological examination of shellfish, some of which are mentioned here. Our present method of examination of shellfish by determining the *B. coli* score, is based primarily on our methods of determination of the *B. coli* content of fresh water. Our definition of the coli-aerogenes group is virtually based on long experience in the examination of fresh water. Yet in shellfish bacteriology we assume that it is applicable to salt water and use it in the same manner. The finding of organisms in salt water that ferment lactose with gas formation, but give atypical results when placed on Endo medium, has suggested the possibility that there are organisms in sea water, remote from sources of pollution, which conform to all requirements for classification as members of the coli-aerogenes group. Some bacteriologists call such tests negative when the atypical Endo plate is reached, while others, who carry the test further, report them positive.

It is possible that such organisms are members of the coli-aerogenes group whose cultural characteristics may have become altered by reason of unsual environment. Work is now being done to determine whether such organisms can be restored to such condition that they will give cultural characteristics typical of the coli-aerogenes group.

In conclusion, let me again emphasize my plea for uniform methods of examination. The

Standard Methods of the American Public Health Association are recommended because they are already published, and if we all use one method until we are able to get reasonably consistent results, we shall have gained a most desirable end. If one desires to experiment with other methods in hopes of improving the method, let him add his experimental work as a parallel to the standard procedure. In any event, let each laboratory worker state in his reports what method, or methods, were used in determining his shellfish scores.

VITAL STATISTICS

LOUIS I. DUBLIN, PH.D.

Metropolitan Life Insurance Company Mortality Record of the First Six Months of 1926—Health conditions among the wage-earning populations of the United States and Canada during the first half of 1926 were not only less favorable than for the same period of last year but of any year since 1920. The increased mortality in the first 6 months of 1926 was due, for the most part, to above-average prevalence of influenza and pneumonia.

In addition to the higher rates for influenza and pneumonia, increases have been recorded for measles, organic heart disease, chronic nephritis, and cerebral hemorrhage. These increases have more than counterbalanced the improvement in the record of diphtheria, tuberculosis, diarrheal diseases, puerperal conditions, and accidents.

One of the most gratifying items in the health report of the industrial policyholders is a pronounced decline among both white and colored in the mortality from diarrheal diseases. Marked improvement among the whites and a slightly better record for the colored is in evidence for diseases incidental to pregnancy and childbirth. The increase from alcoholism as compared with the corresponding months of last year, amounts to 20 per cent. Deaths from cirrhosis of the liver, which is closely associated with alcoholism, numbered 598, corresponding to a death rate of 6.9 per 100,000 as compared with 6.7 for the corresponding period of 1925.—*Stat. Bull.*, 7:3–5 (July), 1926.

Vital Statistics of Canada, 1925—The estimated mid-year population for the eight provinces in the registration area in 1925 was 6,832,000. The birth rate in 1925 was 22.6 per 1,000 population as compared with 23.4 in 1924. The death rates were respectively 9.7 and 9.8. The infant mortality was 78.7 in 1925 and 78.5 in 1924. Diseases of the heart claimed the greatest number of deaths, 111 per 1,000 population. Cancer followed with a rate of 81, pneumonia with 75, diseases of early infancy with 74, and tuberculosis (all forms), 66. The maternal mortality rate was 5.6 per 1,000 births in 1925 and 6.0 in 1924.—Preliminary Report of Vital Statistics, Canada, 1925. Dominion Bureau of Statistics.

Health in Gibraltar in 1925—The estimated population at the end of 1925 consisted of 16,127 British subjects together with 1,161 or more Maltese and aliens. The birth rate in 1925 was 23 per 1,000 population against 22.25 the previous year. The 1925 death rate was 14.80 which was slightly in excess of the 1924 rate of 14.66. The infant mortality rate for 1925 was 83 per 1,000, the lowest since 1913. The zymotic death rate was .62 per 1,000. In 1925 the total number of deaths from pulmonary tuberculosis was 30, resulting in a death rate of 1.7 as compared with 26 deaths with a death rate of 1.5 for the previous year. Diphtheria cases numbered 31 but there were no deaths. Antitoxin was used in all cases. No case of smallpox occurred.—*Gibraltar Ann. Health Rep.*, 76 pp., 1926.

Hygiene and Sanitation in Constantinople during Allied Occupation—A vast change in conditions was wrought at Constantinople through the efforts of the Allied Forces and the Inter-Allied Sanitary Commission under the supervision of the British Army Medical Service. The period under review is from November, 1918, to October 3, 1924, the date on which evacuation took place. At the beginning of this period, conditions were deplorable in the Turkish capital, with excessive filth and vermin. Typhus and plague were rampant.

In the latter part of 1919 plague broke out in the city, but never assumed an epidemic form; 35 cases were reported during the last three months in 1919, 65 cases in 1920, 14 in 1921, 28 in 1922, 14 in 1923 and only 5 cases in 1924. As for typhus cases, in 1917 there were 7,384, in 1918, 5,580; in 1919, 1,643; in 1920, 665; in 1921, 232, while 1924 showed only 54 cases.

Vaccination is compulsory in Constantinople and the city records only 30 cases of smallpox in 1920 and 94 in 1921, a considerable diminution from the figures for 1918 and 1919 which were 349 and 238 respectively. However, the great influx of Greek refugees from the Black Sea ports during 1922 and 1923 caused the figures to rise to 722 and 614. The year 1924 showed only 20 cases.—Hobson, H. G., *J. State Med.*, 34:311–317 (June), 1926.

Poliomyelitis Epidemiology—The most widely accepted theory concerning the mode of spread of poliomyelitis is that of direct contact through the upper respiratory passages. This theory has received experimental support in the detection of the virus in the upper respiratory passages in active cases, abortive cases and healthy contacts and in the infection of animals through the nasal mucosa. However, epidemiologic evidence of direct contact is scant. The proportion of cases ascribed to direct contact, made up largely of multiple cases in families, has been stated at around 5 per cent. It has been observed that the onsets of multiple cases in families as a rule so nearly coincide that they probably represent in the majority of instances simultaneous infection. When allowance is made for this, the proportion of direct contact cases is reduced to an extremely small figure.

The apparent discrepancy between the theory of spread through direct person to person contact and observation in the field has been met by the assumption of a comparatively large proportion of mild forms of the disease which escape recognition, and of healthy carriers, which together are largely responsible for the spread of the virus.

There are certain facts which seem to indicate that the distribution of the virus is indeed much more widespread than is indicated by recognizable cases, namely, age distribution and serum neutralization of the virus. In concentrated populations, the peak of incidence is at from 2 to 3 years of age, after which the decline is so marked that only a small proportion of cases occurs after 10 years of age. On the other hand the peak in rural sections occurs somewhat later, and is not so pronounced as in cities. However, the decline in the peak is more gradual, so much so that after 5 or 6 years of age the incidence is relatively greater in rural sections. From this it would seem that with concentration of population, greater person to person contact with the widespread distribution of virus results not in greater incidence as is true of common contact diseases, but rather in a widespread immunization.

The extent of the occurrence of the abortive form of poliomyelitis is not known and the same is true of healthy carriers.

A study was made comprising about one-third of all the cases of poliomyelitis in the state of Vermont from 1921 to 1926. A table was made with the intention of showing the different means of transmission as indicated by time and space relationships between cases. It was indicated by the table that paralytic poliomyelitis is not infrequently transmitted from a given person to other persons within a definite range but that transmission in such instances is not usually through direct contact between the individuals nor through the intervention of missed cases or healthy carriers but through some indirect means. This is illustrated by a recent outbreak, the epidemiologic evidence of which pointed to milk as the means of transmission.—Aycock, W. Lloyd, *Jour. A. M. A.*, 87:75–79 (July 10), 1926.

Benard's So-called Laws of the First-born and of Alternation—In 1924 R. Benard of Paris enunciated two propositions covering inheritance of malformations and diseases, which he designated as the "law of the first-born" and the "law of alternation." The former states: "If an hereditary defect is to appear in the children of an affected parent, it must inevitably occur in the first-born." The second law states that in a family exhibiting an hereditary defect, if the children show the malformation at all, the abnormal and the normal children will alternate.

Refutation of the laws has been undertaken not only because they lack scientific accuracy but because they are dangerously misleading. On the basis of probability alone, the laws are fallacious. However, they must be subjected to an adequate test to see whether they agree with clinical experience. From literature, 400 pedigrees were collected of families in which there was a definite strain of inheritance of some abnormality. Seventy-six pedigrees fur-

nished reliable evidence for the testing of Benard's propositions. The families were arranged in a table according to diseases. Not only do the diseases listed furnish a wide range for testing Benard's law, but also give evidence, for the most part, of being due to unit dominant characters. Of those in this class are ankylosis of the finger joints, multiple exostoses, peroneal atrophy, myotonia congenita, pterygium, membranous discharge from the nose, sickle cell anemia, telangiectasia, familial jaundice, diabetes insipidus, osteopsathyrosis and cataract. There are also in these pedigrees, cases which are sex-linked and recessive, namely: hemophilia, night blindness, color blindness and retinitis pigmentosa; amaurotic family idiocy, is one case that is recessive.

The children in each family were arranged according to date of birth, the oldest being first.

The tabulation shows in the 76 families whose pedigrees reveal an inherited defect, that abnormal and normal children have appeared. Forty-one families, or 54 per cent, had an abnormal first child whereas in the other 35 families, or 46 per cent, of those studied, the first child was normal. From these facts it may be said that in those families where there is an inherited abnormality, there is no greater tendency for the first child to be abnormal than there is for it to be normal. Abnormal children in such families may be born subsequent to the birth of a normal first child—indeed they are liable to appear in 50 per cent of cases which is quite contrary to Benard's laws.

There is no greater tendency for the affected to alternate with the normal than would be expected on the basis of chance. All possible arrangements of affected and unaffected children appear. Such statements as those of Benard's based upon insufficient evidence are pernicious in that they warrant conclusions which are wholly unsupported by facts and which may work to the detriment of individuals either from the eugenic or medico-legal aspect.—M. T. Macklin, *Canad. M. A. J.*, 16: 656–661 (June), 1926.

The Kahn Test in Leprosy—One hundred leper and leper suspect sera were treated at San Lazaro Hospital, Manila, P. I. In examining each case, both Wassermann and Kahn tests were used. Of the total number under the tests, 93 were Wassermann negative, 5 of which were Kahn positive. There were 92 Kahn negatives, 3 of which were Wassermann positive. Of 19 leper suspects, 18 were negative, one positive for the Kahn test, while 17 were Wassermann negative and 2 positive. There was a very close agreement in the results of these tests with a slight sensitiveness in favor of the Kahn test.

Positive Wassermann without any history or signs of syphilis or yaws were observed in 1 per cent of leper and leper suspect sera. In confirmed leper sera, the Wassermann was positive in 1.32 per cent of the cases without signs or history of syphilis or yaws. Falsely positive Wassermann results were found in 7.32 per cent of non-syphilitic leper sera.

Kahn test was positive in 5 per cent of leper and leper suspect sera without any signs or history of syphilis or yaws. In confirmed leper sera, the Kahn test was positive in 6.17 per cent of the cases without any signs or history of syphilis or yaws. As far as lepers are concerned the (negative) Kahn test is of greater value than the Wassermann test in establishing a negative diagnosis of syphilis or yaws and of lesser value in establishing a positive diagnosis. —Arguelles, M. V., *Philippine Month. Health Bull.*, 5:481–485 (Sept.), 1925.

Vital Statistics for India—At present accurate vital statistics in India cannot be compiled owing to the difficulty of securing the registration of births and deaths. In Madras Presidency, no less than 63,785 unregistered births were brought to light by the district health staff in 1924. During the year 1924, registered births totaled over 1,400,000 which is an increase of 72,000 over the figure for 1923 and represents a birth rate of 34.9 per 1,000 births instead of 28.8 for the previous 5 years. Deaths numbered over 1,000,000 which was a slight increase. In municipalities the death rate of 29.7 in 1923 increased to 32.2 in 1924. About 52,000 deaths from cholera were registered as compared with 5,000 in the previous year. Likewise the figures rose for diarrhea and dysentery. A large number of prophylactic injections were given against cholera. Smallpox mortality declined by over 6,000, the total number of deaths in 1924 being not quite 19,000. Plague gave little trouble but 322,000 deaths were reported under the heading "fevers." A large portion of these deaths were due to malaria and, in principal municipalities, to typhoid.

Infant mortality is one of the most important problems of Indian public health. Every year,

probably 2,000,000 Indian babies die within the first year of life, the death rate varying from 200 to 600 per 1,000 births. It would be difficult to exaggerate the practical importance of the infant welfare movement. During 1924 nearly 34,000 lectures were delivered in over 27,000 centers in Madras Presidency. About 1,500,000 people were addressed and 51 exhibitions were arranged at fairs and festivals.—*Lancet*, 1:999–1000 (May 22), 1926.

What Price Syphilis?—Theoretically syphilis can be eradicated more readily than most other communicable diseases, but only through full coöperation of the people, physicians and health officers all working intelligently and continuously together. This means an immense cost of time and educational effort.

The 1913 survey of 227 cities showed that only 7 made any effort to study the prevalence and control of this disease by requiring notification. By contrast, in 1923 practically all of 100 cities with populations over 70,000 have requirements for notification and show increasing use of reports. There is also a great increase in the facilities for diagnosis and treatment of this disease. Fully 79 per cent of these cities recognize venereal disease as a major subject in public health education. Every state has a bureau of venereal disease or assigns a special personnel for this purpose to its division of communicable diseases.

For the United States, 200,584 cases of syphilis were reported by the State Boards of Health in 1925. The cost of these cases alone on any basis of estimation produces a staggering sum. The answer to the question, "What price syphilis?" depends on the basis of calculating the estimate. Whether in terms of dollars, lives, ill-health, inefficiency or social misery, the cost of the disease will probably outrank that of any other preventable disease. Careful estimates indicate that 10 to 15 per cent of the adult population is infected.

A survey of 3,000 patients in the Mayo Clinic was made with special reference to syphilis. This disease was 8 times as prevalent among railroad employes as among farmers; 26 per cent were infected between 17 and 20 years of age and 32 per cent between 20 and 25 years or approximately 60 per cent before the twenty-fifth year, while 91 per cent had become infected by their thirty-first year. The important thing is to get these cases under treatment at the beginning of infection. For the individual, this gives the greatest promise of cure or arrest of the disease; for the public, the greatest assurance of successful protection. The medical profession must look with especial care for syphilis among patients from 15 to 30 years of age and must coöperate in keeping infected cases under competent treatment and observation for long periods of years. This type of treatment is very expensive and the cost of all such work must be added in computing the total price of syphilis to any community or nation.

Perhaps the greatest tragedy in the whole study of syphilis relates to its attack upon children; and as a matter of the future of the race this is also the basis of its greatest cost. Dr. Whittridge Williams found that syphilis constituted the most important single factor in the causation of fetal deaths, being responsible for 34.4 per cent of all deaths in his series between viability and the first two weeks of the puerperium. The results of treatment for both mother and child in such cases has been encouraging. White and Veeder made intensive efforts to treat and follow up a series of 443 congenital cases. Of 308 cases followed to the end, 22 per cent were recorded as cured, 35 per cent improved, 17 per cent unimproved, 25 per cent dead. Their conclusion from these unsatisfactory efforts was that at present the most desirable thing to do is to reach the syphilitic woman before or during pregnancy.—Snow, Wm. F., and Brunet, Walter M., *New York State J. M.*, 26:560–561 (May 15), 1926.

PUBLIC HEALTH ENGINEERING

ARTHUR P. MILLER, C.E.

Swimming Pool Care and Design—The minimum length for athletic records is 60 feet. As 5 feet lanes are required, the width should be a multiple of 5. A fault of many large pools is too large proportion of deep water. About 90 per cent of the area of a large outdoor pool should be not over 5 feet deep. Deep water should be located at the end away from the entrance or in large pools at the center. Scum gutters should surround the pool. All indoor pool rooms should be of ample height with plenty of windows or skylights. All finish should be water proof. Iron fixtures and fittings rust and cause stains on the walls, etc. Pool linings should be smooth and white. Swimming lanes should be marked on the bottom, and distances and depths on the side wall.

From a health standpoint the material most likely to cause disease is fresh secretions newly thrown off from bathers. The man in the pool with you is more real danger than the man who was in yesterday. To make the pool safe there should be rapid dilution and carrying away of infective material toward the exit pipes. Nasal discharges float and can be flushed off the scum gutters. Continuous refiltration is necessary to keep the water clean. With hard waters heating and excess aeration may cause lime carbonate to precipitate, making the water turbid and incrusting the sand of the filters. Some form of disinfection is essential. Chlorine should be used with discretion. Liquid chlorine is preferable, being susceptible to more accurate and more workmanlike control.—Jack J. Hinman, Jr., *Domestic Eng.*, 3 (June 27), 1925. Abstracted by S. DeM. Gage.

The Mokelumne River Project—The writer discusses the new water supply project for the East Bay Municipal Utility District comprising the cities on the east shore of San Francisco Bay, California. Water from Mokelumne River is to be impounded and then made available for the cities through tunnels, reservoirs, and supply lines. The first unit now under construction is to provide 60,000,000 gallons a day to the District.—Arthur Powell Davis, *West. Const. News*, 1:41 (Jan. 10), 1926. Abstracted by I. W. Mendelsohn.

Advantages of Lime in Water Softening—During the past 2 years more municipal water softening plants have been built than in all previous history. The use of lime in water treatment, softening and purification is going to continue to increase.

Lime in water treatment is used for softening, for bacterial reduction, for clarification, color removal and absorption of carbonic acid. During the process of treatment nothing is added inasmuch as the products formed are largely insoluble and precipitate.

Methods of treatment with lime are described and the advantages of this material shown. The illustrations are of various treating plants, parts of equipment and encrusted boiler tubes.—C. P. Hoover, *Proc. 7th Ann. Conven., Natl. Lime Assn.*, 1925, 70 pages. Abstracted by H. B. Foote.

Studies of Differential Media for Detection of B. Coli in Water—I. *Dyes for Culture Media.* H. G. Dunham—This paper deals with a study as to the suitability of dyes from American manufacturers for use in eosin-methylene blue agar, brilliant green bile, medium and gentian violet lactose broth.

II. *A Comparative Study of Brilliant Green Bile and Standard Lactose Broth.* M. H. McCrady—As a result of a coöperative study in 1923 and 1924 of several laboratories in various sections of the United States and Canada to determine the value of brilliant green lactose peptone bile as compared with the standard lactose broth as usually employed, it was found from the data compiled (presented in this paper) that the bile medium eliminates practically all spore forming lactose fermenters, and seems to be well adapted for use with some water. Complete information for the preparation of the medium is given.

III. *Brilliant Green as a Confirmatory Medium.* H. E. Jordan—Comparative tests on original plantings in lactose broth and brilliant

green lactose bile showed: (1) lactose broth gives more presumptive tests than green bile; (2) green bile presumptives give a higher percentage of complete tests than lactose broth and, therefore, its significance in the earlier stages of the diagnosis is greater; (3) the total number of complete tests for colon group organisms will be higher when using lactose broth as an original planting medium than when using green bile; and (4) green bile appears to extend its selective inhibition to the attenuated forms of the colon group.

Concerning the studies on variation of standard methods by interpolation of green or violet bile following growth in lactose broth, the following deductions are made: (1) its use eliminates the large number of endo plates on which no growth occurs; (2) spore forming organisms are eliminated; (3) the per cent of completed brilliant green cultures to lactose broth cultures is 99.5—errors in manipulation could account for this; (4) the concentration of brilliant green (1/10,000) and bile (5 per cent) used do not seem to be such as to be absolutely specific for colon group organisms. Ten per cent of the cultures growing on endo did not complete. Time is actually saved in the complete test, however, because it is not necessary to grow a special culture for spores.

A condensed summary of the previous investigations is included.—*J. Am. W. W. Assn.*, 14:535 (Dec.), 1925. Abstracted by I. W. Mendelsohn.

London's Main Drainage System—Details are given of the main drainage system of London, England. The daily average quantity of sewage flowing to the outfalls is approximately 250 m.g. The sewage is treated by precipitation at 2 works—Barking and Crossness—the effluent being discharged into the Thames River and the sludge pumped to special tank steamers for disposal at sea 12 miles off the coast of Essex. An average of 60,000 million gals. of sewage per year is treated at the former works and 40,000 million gals. at the latter. The sludge dealt with amounts to 2,150,000 tons per year.—*Surv.*, 68:350 (Oct. 23), 1925. Abstracted by R. E. Thompson.

A Score System for Grading Water Supplies According to Sanitary Conditions—This article is an abstract of a paper presented before the 1925 Convention of the New England Water Works Association and was discussed in the *Engineering News-Record*, Vol. 95, page 469, and in the *Water Works Issue* of *Engineering and Contracting*, Vol. 64, page 1263. A system of scoring is proposed giving relative weights to various factors said to be concerned with the sanitary quality of water supplies. The three major factors are pollution hazards, protective measures and quality condition.

For purposes of scoring, water supplies are divided into two main classes, surface and ground water, with sub-groups under each. Tentative score values for each factor are presented based on the judgment of the author.—E. S. Chase, *Amer. City*, 34:67 (Jan.), 1926. Abstracted by J. K. Hoskins.

Public Health Work in Johannesburg—Water Supply. Water is supplied in bulk by the Rand Water Board. The average daily consumption in 1922–3 was 4,172,000 gals. There are 4 sources of supply, inclusive of certain wells. The water from the Vaal River becomes very turbid in the rainy season. The purification process employed consists of treatment with alum, sedimentation, filtration through Patterson gravity mechanical filters, chlorination (0.5 p.p.m.) and aeration.—Charles Porter, *Surv.*, 68:199 (Sept. 4), 1925. Abstracted by R. E. Thompson.

Metropolitan Water Board Report 1924–5—The subjects dealt with in the 19th Annual Report on the Results of the Chemical and Bacteriological Examination of the London Waters for the year ending March 31, 1925, included: Chlorination of Thames and New River water; taste experiments; suspended solids in Thames River water; prefiltration of water; three star presumptive *B. coli* tests; the 1924–1925 floods; aids to differentiation of bacterial types, value of permanganate; *B. welchii;* gastro-enteritis and water supply; permanent hardness of the East London (Lee) supply; the condition of the Thames River as regards dissolved oxygen; resistance to filtration and microscopical appearances of the prefiltration waters; sterilization of new mains; excess lime method; iodine in water; prolonged storage; and meteorological notes. Storage reservoirs number 49, covering 2,704 acres and holding 19,657 million gallons; service reservoirs 91, covering 91 acres and holding 322.7 million gallons; and filter beds 172, covering 170.7 acres (rate about 2 gals. per sq. ft. per hr.); water mains of 6,725 miles. The average daily supply is in excess of 250 million gallons

to a population of nearly 7,000,000 or about 37 gallons per capita. About 60 per cent of this is derived from the Thames, 20 per cent from the Lee, and 20 per cent from deep wells. —*Surv.*, 68:235 (Sept. 18), 1925. Abstracted by R. E. Thompson.

The **Disposal of Liquid Trade Wastes**—A general discussion of the disposal of trade wastes and the pollution of rivers is given. Brief details are given of regulations put into force by certain local authorities with reference to the discharge of industrial wastes into sewers.—J. H. Garner, *Surv.*, 68:365 (Oct. 30), 1925. Abstracted by R. E. Thompson.

How **One State Prevents Pollution** of Streams—The paper describes and discusses the law passed by the last legislature of Illinois authorizing the establishment of conservancy districts, primarily for the purpose of permitting a unified control of pollution of an entire river system and also for permitting a unified development of a water supply.

This article is of special interest to those who have to deal with water supply and sewage disposal in those sections which are densely settled.—Paul Hansen, *Fire & W. Eng.*, 78:1434 (Dec. 30), 1925. Abstracted by F. C. Dugan.

Composition of Mud Balls—The analyses of 10 mud balls showed moisture content of approximately 3,670, and washing loss of dried sample about 20 per cent. The composition of the air dried washings was "loss of ignition," 31.61 per cent; silica (S_iO_2) 30 per cent; iron and alumina 29.16 per cent; lime (CaO) 7.92 per cent; and magnesia (MgO) 2.35 per cent.

Anaerobic bacterial action is given as the cause of disagreeable odors and character of structure at center of mud balls.—W. S. Mahlie, *J. Am. W. W. Assn.*, 14:421 (Nov.), 1925. Abstracted by H. B. Hommon.

New Activated Sludge Plant for Pomona, California—This plant is designed to serve 20,000 people of Pomona, Claremont and La-Verne, California, treating domestic sewage only, the storm water being excluded. The plant consists of preliminary settling tanks, aeration tanks, final settling tanks, sludge beds and chlorination. The main features of design are given, as well as the plans.

Preliminary Settling Tank. This is of the Imhoff type and is designed for a total detention period of 48 minutes average flow. The sludge digestion chamber has a capacity of 2 cu. ft. per capita. The gas vent area is 38.4 per cent of the total area of the sludge digestion chamber. Provision is made in this tank for the digestion of activated sludge to the extent of 20 per cent of the daytime flow.

Aeration Tanks. There are two tanks, 32' x 106' with water depth 15', and a total capacity of about 6 hours' flow at maximum rate plus 20 per cent returned activated sludge. One cubic foot of air per gallon of sewage based on maximum flow is expected.

Final Settling Tanks. Two 32' square settling tanks with combined capacity of one hour's maximum sewage flow plus 20 per cent of returned sludge are provided and will be equipped with clarifiers.

The chlorination tank is designed for a 20 minute detention period maximum flow; the sludge re-aeration tank has a re-aeration period of one hour, and the sludge beds are four in number, each 20' x 60' and providing for ½ sq. ft. of surface per capita.—Black and Veatch, *Western Const. News*, 1:40 (Jan. 25), 1926. Abstracted by I. W. Mendelsohn.

Public Health Work in Johannesburg. Report of Medical Officer of Health for 1922–3 and 1923–4.—Sewage Disposal. The city is sewered on the separate system and the d.w.f. of 3–4 million gals. is treated at the Klipspruit irrigation farm by screening, passage through detritus tanks, continuous rapid sedimentation (4–6 hours) and intermittent surface irrigation. The sewage is a strong one, owing to cost of water, the relatively small number of water closets, and the tipping of "pail-contents" into the sewers at various intakes.—Charles Porter, *Surv.*, 68:199 (Sept. 4), 1925. Abstracted by R. E. Thompson.

Transmission of Dengue Fever by the Mosquito—The article is a summary of the results obtained in a series of experiments relating to transmission of dengue fever by mosquitoes, made in the Sternberg General Hospital in Manila.

Two species of mosquitoes were used—A. egypti and C. quinquefasciatus. All mosquitoes used were bred from the egg. After considerable experimentation in determining a suitable food for larvae, normal horse serum, containing a small amount of formalin to inhibit the bacterial growth, was used. Later experiments showed that tap water, to which slices of ripe

banana were added, was a superior food for larvae of both species. Adult mosquitoes were fed on aqueous solutions of sugar.

A. egypti were used experimentally 2 to 7 days after emergence, while the C. quinquefasciatus were not more than 5 days old. After the infecting exposure to dengue patients, all mosquitoes not showing complete distension were killed.

It was noted that freshly-bred A. egypti would not bite freely on the day of emergence, but would bite after having taken food and being fertilized. It was noted that they would bite freely during the day, and night biting, although unusual, was observed. Biting habits of C. quinquefasciatus were erratic. Sixty-four men were used, the basic requirements being freedom from disease, including syphilis; short service in the Philippines; and non-immunity to dengue. All precautions necessary to carrying on such an experiment were observed. Of the 64 volunteers, dengue was produced experimentally in 52. Transmission of dengue by A. egypti was confirmed in 47 positive results. Incubation period of the virus in the mosquito was found to be from 11 to 14 days. It was found that the patient is infective to the mosquito during the first three days of the disease, and in the prodromal stage—6 to 18 hours prior to onset. Once infected, the A. egypti remains so during the remainder of its life. The evidence indicated definitely that dengue fever is not carried from the infected A. egypti through its eggs to the next generation. The incubation period in 47 experimental cases varied from 4 to 10 days, and may be considered as being from 4 to 6 days—89 per cent of the cases coming within that limit. The passing of the same strain of virus from man to mosquito and back to man through 6 generations, gave no evidence that the virus suffered attenuation nor that its virulence was increased. Endeavors to infect 7 volunteers with potentially infected C. quinquefasciatus were negative. These volunteers were later bitten by infected A. egypti, with positive results.

(Abstractor's Note—Feeding experiments with A. egypti, carried on by the Abstractor in 1923, showed that these mosquitoes bit freely at night, provided they had not been given a blood meal during daylight hours.

Chandler and Rice observe on the Etiology of dengue fever, *American Journal of Tropical Medicine*, Volume III, No. 3, May, 1923, that A. egypti transmit the disease in from 24 to 96 hours after feeding on patients in the second to fifth day of the disease, and that the incubation period varies from 4 to 6 days.)—Lieut. Col. J. F. Siler, Major M. W. Hall, Major A. P. Hitchens, *Mil. Surgeon*, 58:57 (Jan.), 1926. Abstracted by R. E. Tarbett.

The Bactericidal Property of Milk—In experiments conducted at F. G. Gade's Pathological Institute, Bergen, Norway, the bactericidal properties of about 70 samples of milk were tested, using B. typhosus and 2 strains of B. paratyphosus. Bactericidal properties were demonstrated in fresh milk during the first 4 hours at 37° C. (98.6° F.) and for a longer period at room temperature. Such properties were destroyed by heating the milk to 75° for 15 minutes, but milk heated at 70° for the same length of time was still active. It is suggested that the bactericidal properties are in close relation to the oxidizing enzymes in the milk. Much variation was found to exist in the ability of milk to retard bacteria growth during different seasons of the year and in the resistance of different strains of bacteria to this action.—F. S. Hanssen, *Exper. Sta. Rec.*, U. S. Dept. of Agriculture, 53:474 (Oct.), 1925.

East Ham Municipal Engineering Works—Sewage Disposal. At present time the d.w.f. is approximately 4½ m.g.d., and the works comprise, (a) a system of chemical precipitation (lime and iron sulfate) followed by filtration, and (b) a bio-aeration activated sludge unit. Brief details of latter plant are included. After passing through humus basins, the effluent from both systems is discharged into Roding River (tidal).—*Surv.*, 68:301 (Oct. 9), 1925. Abstracted by R. E. Thompson.

Sanitary Supervision of the Oyster Industry in Connecticut—Regulations of the Sanitary Code were made effective on June 1, 1925, by the Public Health Council. These regulations give the State Health Department power to inspect oyster beds and methods of handling oysters for market. The General Assembly has appropriated the sum of $7,500 to the State Department of Health for a 2-year period, to establish sanitary control.

The Connecticut State Shellfish Commission has charge of the oyster industry. The Commission has mapped and buoyed the shellfish areas in the state, and has loaned its boat and personnel to aid the State Health Department in collecting samples. The Commission has

been assisted by the growers. The field work is placed in charge of the Bureau of Sanitary Engineering. The laboratory examinations are made by the Bureau of Laboratories. The field work consists in sampling oysters and waters, making sanitary surveys, and supervision of shellfish plants.

The oyster industry is centralized west of the Connecticut River, the eastern coastal line being too much exposed for convenient cultivation.

There are several ways in which the oyster may become contaminated: (1) contaminated grounds; (2) floating in polluted water; (3) insanitary shucking houses; (4) washing with impure water, and using contaminated ice; (5) unclean methods of handling, packing and shipping.

A device to collect water samples has been worked out by Captain Burton L. Wright, of the State Shellfish Commission. It consists of 2 plates, the sample bottle being connected to the upper one, and the stopper of the bottle to the lower. The weight of the upper plate opens the bottle, when the sampler rests on the bottom. It is closed by lifting the whole sampler with the supporting line.

In sampling a bed of oysters, 5 representative oysters are taken, opened and the shell liquor tested for the presence of *B. coli*, in accordance with the *Standard Methods* of the AMERICAN PUBLIC HEALTH ASSOCIATION.

The Sanitary Code requires floated oysters to be so marked, and regulates the sanitation of shucking houses by requiring: cleanliness in establishments; screening; cleansing and scalding all utensils; precautions by employees; storage and shipping to be carried on at suitable temperature; medical examination of employees; oysters not to be shipped in contact with ice; toilet receptacles to be carried on oyster boats; and other regulations to insure an unpolluted product.—Warren J. Scott, *Conn. Health Bull.*, 39:199 (Oct.), 1925. Abstracted by J. L. Robertson.

The **Public Health Aspect of Stream Pollution**—The writer makes the following observations on this subject: (1) in regard to surface water supplies, sewage treatment can be considered only as an aid or adjunct to the process of water purification, but not as a substitute for it; no sewage which has not first been clarified and thoroughly disinfected should be discharged onto or in the vicinity of bathing beaches; (2) sewage treatment will lessen but not entirely eliminate possibility of contaminating milk obtained from cows wading in sewage polluted streams; (3) stream pollution is of very little sanitary significance as far as ice supplies are concerned; (4) public decency alone demands the elimination of nuisances due to stream pollution; (5) the cost of completely treating and disinfecting sewage, including interest and depreciation charges and operating expenses, is from $1.50 to $3.00 per capita yer year, depending upon local conditions and hence, before a municipality or institution is put to the great cost of installing and operating a sewage treatment plant, there should be some tangible reason in each case for requiring sewage treatment; and (6) there appears to be need at the present time for a careful study of the streams and lakes of Minnesota in order to determine the relative economic value of the various waters of the state. J. A. Childs, *J. Am. W. W. Assn.*, 14:578 (Dec.), 1925. Abstracted by I. W. Mendelsohn.

The Chemistry and Sanitation of the Swimming Pool—The first part of this article is the attempt of a layman to explain the complicated chemical reactions occurring during treatment of water with alum, soda, and chlorine. Typical reactions are given. The author stresses the necessity for use of sufficient chemicals to maintain clean water of low bacterial content. Alum feed and chlorinator feeds to give best results on his pool are stated. Methods for making tests for acidity, alkalinity, and free chlorine are described in detail. A stock of hypo for emergency use in case of failure of the chlorinator is recommended. Typical forms for keeping operating records are given. Best water and air temperatures are discussed. The duties of the janitor in keeping the pool clean are described. A. J. Danielson, *Phys. Tr.*, 22:286 (June), 1925. Abstracted by Stephen DeM. Gage.

INDUSTRIAL HYGIENE

EMERY R. HAYHURST, M.D.*

Protecting the Hands from Gasoline and Naphtha—Answering a physician who inquired concerning workers in dry cleaning establishments who found it necessary to put their hands in gasoline many times a day, and who developed dermatitis with secondary infection, and for which rubber or leather gloves were not practical, the *Journal of the American Medical Association* (May 22, 1926, p. 1643) says: "Protection for most workers may be brought about by the following steps, thorough cleansing of the hands and arms at the end of the work period with a soap that lathers freely. Immediately afterwards the hydrous wool fat or oil of theobroma should be rubbed into the skin of the hands and forearms thoroughly. The application of oily material should be repeated in the morning, and once or twice during the day if the circumstances of work warrant. Some workers become so susceptible as to require a change of occupation. At the first indication of the dermatitis, the worker should be taken away from the exposure to the irritants and (the skin) treated with a weak solution of aluminum acetate. If the condition is severe the use of aluminum acetate for three or four days should be followed with applications of zinc oxide, 10 per cent, in olive oil. There are also on the market proprietary preparations for protecting the hands against gasoline and oil, particularly in garages. These appear to consist of a substance resembling a soap such as is present in chloramine surgical cream or paste. Just how efficient these preparations are in industrial use, we do not know."

Compensating Industrial Diseases in Germany—A federal decree of July 1, 1925, provides that industrial diseases shall be compensated the same as accidents, but applies only to diseases that are enumerated in the decree. Also, the decree concerns only such industries as come within the scope of federal industrial accident insurance. References to the diseases are, however, entirely general, and, while open to controversy, the courts can adapt themselves to changing views of medical science. In many of the dangerous trades, the workmen must subject themselves to periodic medical examinations. Where incipient disease is found the workman may be granted a temporary benefit up to half of the amount of the full benefit, on condition that he give up his dangerous employment.—Berlin Letter, *Jour. A. M. A.*, 86:21, 1639 (May), 1926.

Standards Set for Dust Respirators—The U. S. Bureau of Mines has adopted 50 per cent efficiency against tobacco smoke in air flowing at 85 liters per minute as a standard for respirators handling ordinary industrial dusts, also smokes from burning wood or carbonaceous materials such as those encountered by city firemen. Efficiencies of industrial dust respirators ranged from 5 to 33 per cent at a rate of only 32 liters per minute; a gas mask canister with 2 filters of absorbent cotton showed 63 per cent efficiency; a Fogler flat felt filter was most efficient, with 97 per cent. Efficiencies against silica dust ranged about twice those against tobacco smoke where silica particles of one micron in diameter were used or 4 times the diameter of the tobacco smoke particles. It was considered that dusts most injurious to miners, stoneworkers, and many others engaged in dusty trades are about one micron in diameter. Thus the standard respirator can prevent inhalation of a considerable amount of dust, but not all.

Tobacco dust does not clog filters, but silica dust will do so rapidly. This resistance to air flow forces the worker to stop to rest or to reduce his exertion greatly. Thus the longer worn the more efficient becomes the respirator in removing dust until its resistance forces it to be cleaned or the filter replaced. The resistance increases proportionately to the number of plies of fabric (layers of cheese cloth or felt, etc.) used, and nearly proportional to the rate of air flow. "Air filters of high efficiency can be made from a sufficient number of plies of material having low efficiency per single ply; for example, cheese cloth. Such filters

* The editor of this Section will gladly receive contributions from members. Please address all communications to Hartman-Ohio Bldg., Columbus, O.

have lesser resistance to air flow than equally efficient filters made of fewer plies of the higher efficiency materials such as woven muslin." They also clog less rapidly. Respirators, of course, have several objectionable features other than their resistance to breathing, such as engendering heat, irritating the skin, leakage about the edges or sides, etc. "While the use of respirators should be encouraged among workers in dusty trades, respirators cannot be considered a final safeguard. Effort should be continued in mines and other industries to prevent the formation and distribution of dust into the air."—*U. S. Bur. Mines*, Serial No. 2745, (Apr.), 1926.

"Clean Hands" Demand Washing Facilities—A lecturer was surprised at remonstrances from an audience to whom he had discussed the importance of "the mere washing of hands on the part of workers in industry before eating" to prevent poisoning by lead, arsenic, chromo colors, etc. The complaint was that washing facilities were oftentimes so inadequate as to render his observation practically void. Granting such, the lecturer stated that many of the best health producers can be had for nothing, for example:

It costs nothing to stand up and walk and breathe properly.

There is no expense attached to taking a few simple exercises every morning.

It costs nothing to select the food best suited to the body.

It costs nothing to clean the teeth twice a day.

It costs nothing to stop using patent medicines.

It costs nothing to have a cheerful, happy disposition, and stop having grouches.—*N. Y. Ind. Hyg. Bull.*, 3:1 (July), 1926. (State Dept. of Labor, Albany, N. Y.)

Kerosene Poisoning Simulating CO Poisoning—Dr. Orville Barbour, Peoria, Ill., reports that noticeable features of kerosene poisoning which he has noted in 2 cases, one fatal, have been the bright, cherry-red color of the lips and, in one, a pinkish tinge of the skin. In the last case, a baby 15 months of age had swallowed kerosene and was comatose when seen, with shallow respiration, rapid, feeble pulse, and a rectal temperature of 101.6° F. Vomitus and enema contents smelled strongly of kerosene. Urine was negative, but 2 days later showed a slight trace of sugar. Its spectrum was negative for methemoglobin. "The clinical and blood picture (noted) is similar to that produced by illuminating gas."—Letter to *Jour. A. M. A.*, Aug. 14, 1926, p. 488.

Elaborate Health Calendar for 1927—Many are familiar with the excellent and comprehensive calendar entitled, "When Accidents Occur" which was put out last season by the National Safety Council, 108 East Ohio St., Chicago, Ill. The new calendar is devoted to health education and gives evidence of careful selection of material, the advocacy of ethical procedures, and is a storehouse of information in preventive medicine and health for the average family (Abstractor). Its contents include the following:

1. Annual physical examination: Historical—less sickness today—check up on your habits—it's only common sense—you owe it to your family.

2. Colds: Statistical—what causes colds—why colds spread—protection against colds—build up your resistance—a few simple rules.

3. Pneumonia: Dangerous disease: Symptoms—the pneumonia germ—strain on heart—careful nursing required—how to avoid pneumonia—danger to aged persons.

4. Tuberculosis: Significance—cause of consumption—no drug will cure it—a disease of civilization—prevention and treatment—fewer deaths now.

5. Focal infections: Discussion—centers of infection—the tonsils—poison and the blood stream—value of the X-ray—nasal cavities and sinuses—don't neglect infections.

6. Heart disease: Discussion, "Well-known trainer dies of heart disease"—how the heart works—infections—enlargement of the heart—fatty degeneration.

7. Bright's disease: Discussion—a disease of the whole body—causes and symptoms—effect on the heart—high blood pressure and dropsy—prevention the only cure.

8. Headache: Discussion—a symptom, not a disease—common causes of headaches—migraine, or "sick headache"—danger of self-drugging.

9. Diphtheria: Discussion—the cause of diphtheria—antitoxin, nature's remedy—saves children's lives—the Schick test.

10. (a) Scarlet fever: Discussion—characteristics and symptoms—a reliable preventive.
(b) Measles: Discussion—cause unknown—danger of after-effects—what to do for patient.

11. Care of the teeth: Discussion—care of

baby teeth important—training the child—hard foods good for teeth—adult's tooth troubles.

12. Care of the eyes: Discussion—delicate organs—eye injuries—eyestrain—astigmatism.

Each of the 12 parts ends with a list of precepts printed in bold faced type. An artistically colored picture surmounts the calendar for each month, safety precepts predominating. The calendar should appeal to schools, homes and offices as well as shops.

Is Effective Temperature or Cooling Power the Better Index of Comfort?—Conclusions—"It will be gathered that no single index of comfort exists, nor is one likely to be evolved, for the reason that the skin of the body is sometimes dry, and sometimes moist from perspiration, and so it reacts very differently to atmospheric conditions. At the same time, it appears that under ordinary conditions the cooling power of the air, as estimated by the dry kata-thermometer, is a much better index than the effective temperature, because it automatically makes a considerable allowance for acclimatization. It does not allow enough, however, and therefore some further correction has to be made when comparing summer and winter cooling powers, but its readings are not greatly at variance with bodily sensations, as effective temperatures are. Under special circumstances the effective temperature is a better index than the cooling power, but it appears to me that such circumstances seldom occur in practice. It might be thought that they held when we passed from a hot room to the cold air outside, or vice versa; but they do not really do so, as we appropriately vary the clothing worn in order to neutralize the temperature differences.

"For men engaged in heavy muscular work the wet kata cooling power is the best index; for men engaged in moderate work, therefore, both dry and wet kata cooling powers have to be considered." H. M. Vernon, *J. Ind. Hyg.*, 8, 9:392-401 (Sept.), 1926.

Effective Temperature Versus Kata-Thermometer: A Reply to H. M. Vernon—Conclusion—"It has been shown that the effective temperature index, as well as the comfort zone, takes due account of acclimatization, and that the conflict with the kata-thermometer cannot be explained by this factor, but is due to the inherent defects in the instrument itself. This conflict was accounted for quantitatively by correcting the kata indications for clothing and humidity.

"Vernon's evidence of sensations of air movement as judged by the kata-thermometer is not at variance with the effective temperature index, as he claims, but, when corrected for clothing, it is in fair agreement with the Pittsburgh work. Unfortunately we cannot correct his results for humidity because he has not recorded the wet bulb temperatures in the factories.

"In my opinion there is one conclusion to be drawn: The kata-thermometer, because it differs physically from the human body so much and in so many ways (this Vernon himself, admits [2, p. 31]), falls far short of the purpose for which it was designed. It is, however, very valuable as an anemometer for low air velocities." C. P. Yaglou, *J. Ind. Hyg.*, 8, 9:402-413 (Sept.), 1926.

Miner's Phthisis in South Africa: Dr. W. Watkins-Pitchford—The following editorial from the *British Medical Journal*, Aug. 14, 1926, reviews the most extensive experiences we have in regard to the subject of silicosis, and also eulogizes the work of a world-famous industrial hygienist:

Dr. W. Watkins-Pitchford is leaving South Africa after some thirty years spent there in pathological, bacteriological, and public health work. After holding several appointments in Natal and the Transvaal, Dr. Watkins-Pitchford became the first director of the South African Institute for Medical Research, Johannesburg. In 1916 the Legislature of the Union established a Miner's Phthisis Medical Bureau to administer the medical sections of the Miner's Phthisis Act, and Dr. Watkins-Pitchford was appointed chairman. We have received a copy of Dr. Watkins-Pitchford's swan song in the shape of the report of the bureau for the year ending July 31, 1924. The report is a sufficiently voluminous proof of the energy and activity he has displayed. The bureau consists of whole-time officers responsible directly to the government. Their work is of great pecuniary importance to the gold-mining industry of the Transvaal, which has to pay compensation to mine workers and their dependents in cases of miner's phthisis; the expenditure involved is about 800,000 pounds a year. The medical officers undertake an "initial" examination for fitness of all those who wish to work in the mines, and a "periodical" examination of all who are exposed to quartz dust in the mines, every 6 months of Europeans and every 3 months of natives; a "benefits" examination of any worker who believes he

has contracted miner's phthisis; and post-mortem examination, in the interests of the dependents, of all deceased mine workers. The disease, whether it is complicated by tuberculosis or not, is always referred to by the officers of the bureau as "silicosis." It appears that at the initial examination from 42 to 73 per cent of the candidates for mine work have been rejected in various years, almost entirely for pulmonary defect. As a result of this stringent test, among 6,000 Europeans passed since 1916, only 7 cases of silicosis have occurred, and only 12 cases of simple tuberculosis.

Periodical examinations of 12,000 European working miners showed an incidence of simple tuberculosis of 90 per 100,000, as compared with 321 per 100,000 in 1920. The rate of incidence of simple silicosis, however, has risen from 1,756 to 2,652 per 100,000; 319 fresh cases have occurred in the 12,000 workers during the year under review. But practically all these new cases were among men who were working before 1916. The mean duration of employment in the mines before the appearance of signs of the disease—the "average effective period"—has risen from 113 months to 125. It has been found that early retirement from the work does not affect the prognosis of silicosis. Retirement is compulsory for simple tuberculosis and for tuberculosis with silicosis; the rate of incidence for the last mentioned condition has fallen from 800 to 164 per 100,000. The diagnosis of silicosis has been greatly helped by radiography. In 225 out of 541 ex-miners who had been compensated for silicosis before the bureau was formed, no evidence of either silicosis or tuberculosis could be found on examination for a further compensation claim.

Post-mortem examination of 122 miners showed that silicosis was responsible for death, or contributory to it, in 41 per cent of the cases. The 178,000 native laborers are not all submitted to examination, but only those who are sent by the mine medical officer as suspected cases of tuberculosis or silicosis. Consequently the rates of incidence of the diseases are not strictly comparable with those among Europeans. But there is no doubt that silicosis is comparatively infrequent among natives. This is accounted for by the fact that few natives work more than 6 or 9 months at a time, and then have long holidays at their kraals. Dr. Watkins-Pitchford has come to the conclusion, as the result of a special investigation of natives who had worked continuously for longer than five years, that the native is neither less nor more susceptible to silicosis than the European. During this special investigation several cases of simple tuberculosis and tuberculosis-with-silicosis were discovered which had not been suspected. Dr. Watkins-Pitchford attaches great importance to "this unsuspected reservoir of infection" from carriers, and thinks that they may reasonably be credited with having originated many of the 878 other cases of tuberculosis and of the 438 fresh cases of silicosis which occurred during the year. He advocates the creation of a small but energetic organization for the detection of tuberculosis among native recruits and employed laborers. The report contains notes upon cancer of the lung, upon the pathological changes in the lungs which are specific to silicosis, and upon the non-prevalence of syphilis, Bright's disease, and miner's nystagmus. This report of the Miner's Phthisis Medical Bureau shows that Dr. Watkins-Pitchford has indeed deserved well of the country of his adoption.

Phosphorus Necrosis in the Manufacture of Fireworks and in the Preparation of Phosphorus—Emma F. Ward, *Bull. 405*, U. S. Dept. of Labor Statistics, Washington, D. C., 1926.

Sanitary Survey of the Coal Mines of Alabama—F. V. Meriwether, *Serial No. 2746*, U. S. Bur. of Mines, Washington, D. C., Apr., 1926.

FOOD AND DRUGS

WALTER S. FRISBIE

A Vitamin B Deficiency Manifesting for the First Time in the Second Generation—Feeding experiments on rats were undertaken to determine the effect upon reproduction of a diet considered adequate except for a possible deficiency or excess of the vitamins contained in cod liver oil and butter fat, the diets used being uniform except for variations in the content of these substances. In these experiments lemon juice was used as an antiscorbutic and yeast was added at the level of 1.6 per cent. Cod liver oil was fed at levels varying from 0.25 per cent to 5.0 per cent. On the diets containing sufficient cod liver oil to insure reproduction, the death rate was very high. The findings seemed to group the deaths in more than one class, but only one of the groups is discussed in this article. Four females and one male received the basal ration containing 2.0 per cent cod liver oil. One female, in 168 days, delivered 6 young, one of which died within a few hours. The young averaged 5.6 grams in weight. After 15 days, 4 exhibited paralysis of the hind legs, extreme diarrhea, diagnosed polyneuritis. Yeast was immediately increased to 8.0 per cent, one of the young remaining in good condition throughout the period of nursing and was successfully weaned. Of the 3 remaining animals suffering from polyneuritis, 1 died within a few days, 1 recovered completely, and the remaining 1 improved and lived for several days. Since the animals that died had stomachs filled with milk, starvation was not regarded as a contributing factor. It was considered that vitamin B should be separated into two factors—one growth-promoting and one preventive of polyneuritis. This dietary deficiency is not manifest until appearance of the second generation, which, according to the author, indicates that the maternal organism will not deplete its stores in favor of its young which makes apparent the necessity of increasing the vitamin B intake and maintaining it throughout the lactation period. Suggestion is made that clinical application of value may be made in such countries as Japan, where, according to Takano (*Jap. Med. World*, 6:8, 1926), infant mortality is greatest among breast-fed infants; one-half of all the deaths from this disease (beri-beri) during 1923 was from this class. While 9,000 infants died, only 500 mothers did so.—Ira A. Manville, Univ. of Ore. Med. School. *Science*, 64, 1654:256 (Sept. 10), 1926.

Food Deficiency and Preventable Illness—The opinion is advanced that more illness is due to defective diets than is at present recognized. The proportion of protein, fat, and carbohydrate in both adult's and infant's diet could be varied considerably without ill-health provided adequacy is maintained in other respects. It has been shown that vitamin A must be increased if cereals are increased and vitamin B increased if the total energy value of the diet is raised. Ultra-violet rays may compensate for the absence of vitamin D. Rickets may develop in children for several reasons—first, deficiency of the antirachitic vitamin in an otherwise adequate diet, *e.g.*, a breast-fed infant of a mother whose stores of vitamin are low; second, deficiency of calcium in a diet low in antirachitic vitamin, *e.g.*, a child receiving little milk; third, from excess of cereals unless this is balanced by increase of vitamin D; fourth, absence of solar irradiation combined with deficiency of vitamin D. The author discusses the relative values of artificial sunlight and cod liver oil. It is pointed out that irradiation only compensates for lack of vitamin D. Cod liver oil is more effective by supplying both A and D. Referring to malnutrition in infants, the author cited the results obtained in the Royal Infirmary, Sheffield, by providing a vitamin-rich diet for such infants suffering from malnutrition, the diet being enriched by the addition of cod liver oil emulsion, marmite and orange juice to supply vitamins A, B, C, and D. The majority of infants improved rapidly. Stress is laid on the effect on the young of good feeding of the pregnant and lactating mother. Such simple dietary measures will not only prevent rickets but will produce teeth that are less liable to decay. There is also evidence that the resistance of the body will be increased against respiratory and

alimentary infections. Rickety children are peculiarly liable to catarrhs, bronchitis and pneumonia, but puppies getting cod liver oil never have pneumonia. The concluding reply to the discussion which followed stated that the advocates of better food and the use of cod liver oil did not neglect light treatment.—Dr. Stuart J. Cowell, Sheffield, British Medical Association. *Lancet*, 211:496 (Sept. 4), 1926.

Lead Poisoning from Food—This article refers to an account in the *Presse Medicale* (La Saturnisme alimentaire a Vidin [Bulgaria] en 1923, D. Mladenoff, *Presse Medicale*, August 11) of an outbreak of lead poisoning in Bulgaria which only terminated when its origin was detected 5 months later. There had been 314 cases occurring in 153 families with 3 deaths. Several deaths occurred among the poisoned as a result of other disorders thought to have been induced by the absorbed lead. The source of the poisoning was adulterated red pepper prepared from capsicum fruit and often adulterated with maize, sawdust, iron filings or brick dust. Analysis revealed 20.5 per cent red lead and 4.1 per cent of sand, while very small amounts of true pepper were found. The pepper was placed on the market by only one firm. Most of the cases followed the ingestion of a number of small doses.—*Lancet*, 211:507 (Sept. 4), 1926.

Effects of Caffeine and Theobromine upon the Formation and Excretion of Uric Acid—Caffeine and theobromine are consumed in large amounts in common beverages in the United States, averaging an annual per capita consumption of 90 grams, or 225 milligrams of caffeine per day assuming the caffeine content of coffee to be 1.5 per cent and of tea 2.5 per cent. A study was undertaken to determine the effect of these substances on the formation and excretion of uric acid, limited so far to the subject of urinary excretion. Human subjects were used for the investigation. Healthy men picked from a list of 50 or more inmates of the prison at San Quentin were placed on "low purine" diet which is given and this was kept constant through the experimental period. Two sets of experiments were performed—the first on 4 subjects for 10 weeks and the second on 3 subjects for 2 weeks. In the first experiments blood samples were taken twice a week for uric acid examination and urine samples were collected over 24-hour periods. In the second experiment, blood and urine samples were obtained in 2- and 3-hour periods. Charts are given for the several subjects showing the daily volume of uric acid, the daily volume of urine, and blood intake. Conclusions are that the ingestion of either caffeine or theobromine tends to increase the concentration of uric acid in the blood but after caffeine ingestion there is evidence of an increase in uric acid production. After theobromine ingestion its formation seems unchanged but excretion diminished. Prolonged administration of either caffeine or theobromine seems to depress active kidney excretion. No proportional relationship between the amount of drug given and the quantity of uric acid excreted was found. Under normal conditions, a relationship exists between the volume of urine and the quantity of uric acid excreted but under diuretic conditions (except when produced by uric acid itself) no such relationship is evident.—Guy W. Clark and Alfred A. de Lorimier, Univ. of Calif. *J. of Phys.*, 77, 2:491 (July), 1926.

The Use of Sodium Nitrite in the Curing of Meat—Nitrates have been used from ancient times in the curing of meats, but only in recent years has the function been understood. The investigations of Haldane and Hoagland indicate that this is a color fixation through reduction of nitrates to nitrites which combine with the hemoglobin of the meat. Present scientific knowledge indicates nitrates are useful only as color fixatives and not important in preservation. Nitrates are valuable as color fixatives only when reduced to nitrites. If nitrite formation is prevented, color fixation does not take place. The formation of nitrite was ascribed to bacterial action, presumably induced by water used in making up the pickling solutions or by implements of cooking. Means of eliminating irregularities of nitrite formation have been much sought but indications are that the problem may be solved by cultivation of nitrate-reducing organism or by direct addition of the required nitrite. The first method required expensive supervision, suitable only to the larger establishments. Direct use of nitrite is, therefore, logical. Experiments were undertaken in order to determine the practicability of using nitrite directly and the advantages and disadvantages connected with it including the possibility of danger to human health. Experiments are described in which sodium nitrite is used to the extent of 0.2 per cent in the curing of meats, paralleled by similar quantities of meat

cured with the usual proportions of sodium nitrate. Finished meats were analyzed as well as curing materials and meats were also tested by cooking and serving to a number of persons. The available nitrite content of hams was somewhat higher than the nitrite content of hams cured with nitrates. Judges compared the nitrite-cured meat to that cured in the customary manner and none were able to distinguish between the two. The essential experiments were on hams and bacon. Subsequent experiments conducted in 17 establishments in 13 cities included pork, pork and beef cuts, as well as tongue, and corned and dried beef. These experiments were made on a commercial scale. Results of the large-scale operations confirmed those of the first experiment—that sodium nitrite could be substituted for sodium or potassium nitrate ordinarily used, and that direct use of nitrites did not involve increase in nitrite in the finished product. The use of sodium nitrite was not deemed to be deleterious to health in view of the fact that the meat inspection act and the food and drugs act both sanction the use of saltpeter which, as has been shown, results in the finished product containing nitrites. As a result of these experiments, it was found that the residual nitrite was less in the nitrite-cured meats than in those cured by the customary process.

A shortening of the customary curing period may be obtained by the use of nitrites, and meats so cured are in no way inferior in quality or wholesomeness to meats cured with nitrates. As a result of the experiments described above, the use of sodium nitrite in meat curing in federally inspected establishments has been formally authorized by the Department of Agriculture subject to meat inspection regulations.—Robert H. Kerr, Clarence T. N. Marsh, Walter F. Schroeder and Edward A. Boyer, Bureau of Animal Industry, U. S. Dept. of Agri. *J. Agri. Res.*, 33, 6:541 (Sept. 15), 1926.

CHILD HYGIENE

Measles in Private Practice as Modified by the Use of Immune Serum—Drs. Freeman, New York, presented their work in measles immunization at the 1926 meeting of the American Pediatric Society and gave in detail their work with private patients as they felt that results on private cases give a much better picture of the actual value of this treatment. Briefly, their conclusions were that while the use of convalescent measles serum is a valuable measure in the modification of the disease and in prevention of complications, it could not be relied upon to prevent occurrence of measles, and this fact remained true regardless of the stage of incubation at which it was given, or of what amount was used, up to 10 c.c.—Rowland G. Freeman and R. Godfrey Freeman, Jr., *Arch. Pediat.*, Sept., 1926.

Teaching Health to Children—The two groups, parents and teachers in the home and school can successfully teach health to the child if they will coöperate. The child should have a background of health habits on which school and home together may build. He looks to the school as the source of knowledge and so the school must include health teaching if he is to consider health important. This means that teacher training institutions must teach health education methods in order to have health taught effectively.

How much real significance health education is to have with the child depends on putting the teachings into action in the home.

It is not possible to say definitely what should be taught in any grade at any time, for the program should be based on the needs of the particular group. However, the formation of desirable habits should be the object of the first three grades.

"Interest devices" are successful only if they bring about action. There is danger of losing sight of the real objective.

Above the fourth grade health teaching may be more scientific. Health habits must continue to be emphasized but supplemented with reasons why and correlated with elementary physiology. Above the sixth grade civics may be utilized and the community emphasized on through the upper grades. A separate hour is not needed if a health emphasis is given to all subjects.

Health is one of the foundation stones of

happiness. Personal health is taught so that the child may have this basis of happiness, and community health is taught that our towns may be well and sound. The ultimate end of better personal and community health is a stronger nation.—Marjorie Delavan, Michigan Public Health.

Düsseldorf Stages a Mammoth Health Show—For two miles along the winding Rhine stretch the grounds and buildings of the "Gesoli" (a combination word composed of the first letters of the German words for hygiene, social welfare, and sports). The arrangement of exhibits is such that a visitor must pass through halls where some scientific health information will be absorbed before he reaches the palatial dining room and amusement park. It is like sending a would-be Coney Island crowd through several sections of the American Health Congress before reaching the Giant Dipper.

Each day in the main permanent building in the blackness of night an astronomer lectures about the different planets, which are projected in the demonstration heavens by an apparatus which was worked on for ten years. In two minutes the entire panorama of moon, sun, and planets make their twenty-four hour revolution.

Other exhibits show a transparent man where the actual organs of a human body are made visible by a new process invented by the Dresden Museum of Hygiene; the human embryo in various stages of development; a white gauze stretched to show that a sneeze carries germs three yards, and a cough one yard; a giant vat showing the three hundred and sixty liters of blood which the human heart pumps in one half-hour—are just a few of the graphic presentations which are capturing the interest of the visiting crowds. A huge amount of food showing what the average working man, eating 3,100 calories a day, consumes in one year includes 410 pounds of wheat, 470 pounds of vegetables besides potatoes and beans, 52 pounds of sugar and 5½ pounds of salt, and draws attention to the facts of nutrition.

The glass enclosed rooms where ten chubby babies live a model life; the model lodging place or hostel where boys and girls from 8 to 20 years old may stay over night; the display of the Hygiene Museum of Dresden showing: that three and a half billion marks were spent in Germany for liquor in 1925; that the evils of bootlegging do not necessarily accompany prohibition; that 2,840 German teachers are pledged to abstain; and that "the press could not tell the truth even if it wanted to" due to the many liquor advertisements; the realistic replica of a Ruhr coal mine with the many modern safety devices are a few of the interesting exhibits. The Gesoli is a stupendous health world's fair. —Elizabeth Leitzbach, *Survey*, Sept. 15, 1926.

Sleep and Rest—The need of sleep and rest in sufficient amounts, especially for children, cannot be overemphasized in these days when so many children live practically an adult life. Children should not stay up at nights for play, study, or work, nor should they be allowed to take the early morning hours for such activities. Plenty of sleep is the best cure for fatigue and the best preventive for all its attendant ills.

The child in primary grades needs at least 12 hours sleep, and no child between 12 and 13 should have less than 9½ hours' sleep. Certain things prevent sleep from being of the best kind. Dr. Seham mentions especially noise, excitement, irritating music and overactive play before going to bed as being detrimental. Bad air, crowded sleeping rooms and improper food taken at supper or shortly before going to bed all detract seriously from restful sleep. Every child should have at least a bed of his own. Rest, other than sleep for children, as for adults, may often be obtained by change of activity—school work alternated with out-of-doors play, strenuous play periods followed by quiet games or readnig.—Max Seham, *Hygeia*, Oct., 1926.

A Food Selection Score Card—The members of the committee on nutrition extension of the American Home Economics Association have drawn up a Food Selection Score Card. This is a device for teaching proper food selection to homemakers. It combines a statement of the essential foods which make up the main part of a well selected diet and an opportunity to evaluate the original diet and the improvement adopted. It provides for credits and deductions. The credits allowed represent certain essential foods weighed as nearly as possible in accordance with their actual value in the diet. No attempt is made to cover the energy value of the diet. It is intended for use with other instruction in the subject matter of nutrition. If a simple health record on which certain easily judged criteria of health can be checked at the beginning and the end of a given period is used with the score card, it serves also to

demonstrate the effects of food selection upon the aspects of health. The score card has been found to be most useful not only to homemakers but boys' and girls' clubs, high school and college classes, and other like groups.—Flora M. Thurston, *J. Home Econ.*, Sept., 1926.

Nurses and Maternal Welfare—We are realizing more and more the importance of the visiting nurse in conjunction with the doctor in caring for expectant mothers. The nurse can do "home visiting," explain the doctor's orders and moreover see that they are followed. Comparatively few mothers can afford a full-time nurse, and few physicians have time to give the detailed instruction so many mothers need. Here the visiting or public health nurse steps in and proves herself invaluable.—*Hygeia*, Oct., 1926.

Signs of Health—Little scientific data upon the general subject of positive health in childhood is available, with the exception of Baldwin's and Davenport's studies.

Discussion with experienced pediatricians showed that it was generally considered unwise to set down hard and fast signs of health in childhood.

The need for a "safe workable list of the signs of health" is, however, a real necessity and Dr. Chaplin outlines most acceptably a list of clinical signs of health for the use of those interested, especially physicians, nurses, nutritionists and volunteer lay workers who work with malnourished children.

He covers first the outward manifestations of the well built body and then of the well functioning body, following Dr. Richard M. Smith's method. Eyes, color, teeth, hair, skin, fat, muscles, chest, extremities, foot position, arches, weight are taken up in turn and discussed briefly under the manifestations of a well functioning body; expression, muscular coördination, breathing, tongue, bodily repose, freedom from fatigue, good posture, are all considered from the viewpoint of the normal. The influence of age on certain signs must be taken into account especially. This is noticeable in muscular development which varies with different ages, and also, naturally, in coordination. Relation of age to posture is important as, owing to developmental factors, the healthy runabout (2 to 4 years) cannot be expected to show an abdomen that does not extend in front of the anterior line of the chest.

Dr. Chaplin emphasized one point, too often overlooked by many of us in examining the well child for defects, that healthy children can have many variations within the normal. We quote his last paragraph:

"I wish especially to emphasize that the particular advantage of these clinical signs of health is that they do not aim to describe a single type as the ideal, but rather an ideal group. It is not the mountain peak where there is room for but one child to stand and proclaim, 'I and only I am the healthy type'; it is rather the plateau which may be just as high as the mountain peak, but upon which there is room for thousands of healthy children of various ages, types, and degrees to take their place and proclaim, 'We represent the normal variation of healthy children.'"—Hugh Chaplin, *J. Home Econ.*, Sept., 1926.

Health Interests of Adolescents Stand Revealed—"To what extent is health education being translated into healthful living?" is a question that all health educators are asking. The New York Tuberculosis and Health Association, believing that adolescents are particularly susceptible to the implantation of health ideas and the development of health habits, made a 3-year study, as a part of an intensive health campaign in the district, of health education in a boys' high school in New York. At the beginning of the demonstration the biology classes made an excursion to Health Corner, a nearby former saloon, where physicians addressed the boys on personal hygiene. The following year lectures in the classroom were arranged on the following subjects:

One hundred Per Cent American Body
Stoking the Human Engine
The Four-Cylinder Pump, Your Heart
Tuberculosis, a Keystone Disease
Germs, Friendly and Otherwise
Insuring Your Smile
Seeing Through Life
Nipping the Ear Trumpet in the Bud
Checking Up Your Body Assets
Health in Industry
The Quack in the Bottle, Box and Jar
Social Hygiene I and II
First Aid I and II

To supplement the lectures, posters were used and literature distributed. At the end of the school year a written examination was given.

When the demonstration was concluded, in an attempt to evaluate the work, a questionnaire was filled in by the boys anonymously. Of the 12 questions, of particular interest are the following:

		Percentage
4. Did the lectures interest you?	yes	90.0
	no	3.2
5. Have these lectures influenced you in personal hygiene?	yes	70.0
	no	4.9
	a little	5.1
10. Would you like to learn more about health and its conservation?	a little	13.0
	yes	94.4
	no	3.2
11. Check the subjects listed below on which you would like further information:		
(a) Social hygiene		53.3
(b) Disease prevention		60.1
(c) Food and its digestion		52.0
(d) Great men in medicine		26.8
12. Will you write down any subject pertaining to health or hygiene on which you would like to hear lectures?		

In many cases no answer was given.

Here followed 59 subjects selected by the boys containing such illuminating ones as: internal glands; about the blood; stunted growth; smoking; dissipation of the younger generation; how to memorize; psychology and its effect on every day life; bones of the legs; evils of spitting; and birth control, as well as many of the subjects one might ordinarily expect to classify as subjects pertaining to health and hygiene.—Iago Galdston, *Nation's Health*, Sept., 1926.

"Diphtheria Curable and Preventable"—This is the title of a booklet put out by the American Association for Medical Progress, a national lay organization (370 Seventh Ave., New York City) which seeks "to encourage all experimental research for the advancement of medical science; and to inform the public concerning the methods and discoveries responsible for man's increasing control over animal and human diseases."

This little pamphlet covers in interesting and readable form the main facts of the cause of diphtheria, a brief history of the discovery of toxin and antitoxin and its effect on death rates in our largest cities since 1895. It goes on to give the story of toxin-antitoxin and gives some interesting figures for the cities that have been doing intensive work along this line. New York City shows a falling off of practically 5,000 cases of diphtheria a year, since immunization was started. Detroit has reduced its diphtheria death rate of 35.6 per 100,000 population in 1921 to 9.5 in 1925. Auburn, N. Y., has shown what a small community can do by having a 3-year anti-diphtheria campaign. It had one death in 1924, none in 1925.

Diphtheria is one of the greatest enemies of childhood, but with "the practical knowledge already at our command, every case of diphtheria and every death therefrom is a direct challenge to our intelligence."

Summary from Article on Endemic Goiter and Physical Development in Cincinnati School Children—For the purpose of determining the effect of endemic goiter upon physical development, 1,341 white boys and 1,576 white girls were examined in 8 Cincinnati public schools.

Five hundred and fifteen, or 38.4 per cent, of the boys had some degree of thyroid enlargement, and 927, or 58.8 per cent, of the girls had such involvements.

Estimates of nutrition and posture as well as 10 uniform measurements were made of each child.

A record of the birthplace of each child, and of his parents and grandparents was also kept. The data suggest that thyroid enlargement is slightly less frequent among the girls who are native born. The available information on this point among the boys is insufficient for the making of satisfactory deductions.

According to the estimates of the examiners, better nutrition and posture were slightly more frequent among thyroid-normal boys and girls.

Considerably greater percentages of thyroid-normal children were more than 10 per cent overweight than were thyroid-enlarged individuals. Underweight was more frequent among thyroid-enlarged children.

There was little significant difference between the average standing heights of thyroid-normal and thyroid-enlarged boys. The standing heights of thyroid-enlarged girls were greater than those of thyroid-normal girls.

Average sitting height was consistently greater among boys and girls with thyroid enlargement.

Average chest circumferences, transverse, and antero-posterior chest measurements were slightly greater among children having normal thyroid glands.

There were very slight differences in average vital capacities between thyroid-normal and thyroid-enlarged children; the advantage found in this group apparently resting with the former, the greater advantage being with the boys.

Comment—Despite obvious limitations, the study has apparently shown that children with normal thyroid glands have a definite superiority in certain physical measurements. Con-

sequently it may be assumed that thyroid-normal children are, to some extent, better developed physically. Thyroid-enlarged children, however, appear to have the advantage of slightly greater height, particularly in the sitting position.

Whether the results of this examination of a relatively small number of children indicate a constant, uniform, and significant difference in physical measurements of normal and thyroid-enlarged individuals can be ascertained only by further and more extensive investigations of similar character. Certainly the findings are suggestive and indicate the need for maintaining a normal thyroid gland lest a retarding influence be exerted upon physical growth.—Robert Olesen and Neil E. Taylor, *Pub. Health Rep.*, Sept. 3, 1926.

"A Practical School Health Program"—Superintendent Kelly divides his description into two parts, that is the state of the educational program before and after his well organized health plan was fitted in. The outline follows.

This does not focus alone on medical inspection but rather on prevention, correction and education in health for the normal and the physically unfit. The total cost per child per day is about $.016. He very aptly concludes that a superintendent must do three things: Fit the plan into the general program; support its individual workers; direct its proper functioning. Yet its success comes through a unity of purpose involving every person bearing a definite relation to the child.—Daniel J. Kelly, Supt. of Schools, Binghamton, N. Y. Monograph No. 1, School Health Bureau, Metropolitan Life Insurance Company.

The Relation of the School Physician to the Family Doctor—The material in the paper deals only with the private day school, the Beaver Country Day School being taken as the example. A very complete physical record card is given and is criticized because it requires so much time for the examination that the doctor has none left for follow-up or study of general health problems. Moreover, it is too complicated and technical to be of use to the teachers. The writer then presents a simplified record—figures on the results of the examination of 200 girls are presented. Out of 80 recommendations, 50 were taken up by the parents. No treatment save for posture is attempted by the school. The consensus of opinion gathered from parents, heads of private schools, private school physicians and family physicians is that yearly physical examinations should be made even in private day schools. The writer feels that such examinations cannot replace those of a careful family doctor and that too much dependence should not be placed on them.—Donald S. King, *Boston M. & S. J.*

"Medical Aspects of the Child's Capacity for Education"—A wealth of fine expression makes this article interesting and an understanding of the child makes it helpful.

The unusual consideration in it are

A. Adverse factors which hamper normal growth

B. Loss of mental balance produced by physical defects

C. By what faults of the parents does the child's mind fail to grow in the right direction?

D. The part of the teacher in realizing that full concentration is necessary; that kindness is a positive factor; the need for proper balance between the child's imagination and emotions as contrasted with his physical activities

One great encouragement is the child's plasticity of mind and body. Dr. Newsholme does not say how parents and teachers are to attain to his fine understanding of the child's needs.—H. P. Newsholme, Medical Officer of Health, Croydon. *Med. Off.*, Sept., 1926.

EDUCATION AND PUBLICITY

EVART G. ROUTZAHN *

Giving the Public an Inside View of the Science of Medicine—"Thirty thousand citizens of Cincinnati saw the Exhibit of Medical Science presented under the auspices of the Cincinnati Public Health Federation at the College of Medicine, February 16 to 22, 1926. The exhibit was proposed by the Public Health Federation in order to acquaint the public with the advances that have been made by medical science and to give people a more intelligent understanding of what the science of medicine and surgery mean.

"The publicity campaign was voluminous and many sided. 'What Medical Science Means to You' was the slogan selected. Before the opening date for the exhibit more than 125,000 people had been reached by individual messages. Printed cards were put in the pay envelopes of 50,000 factory workers. Attractive four-page folders were distributed to 75,000 people, by the life insurance companies, by civic and fraternal organizations, through the seventh and eighth grade public and parochial school children to their parents, to high school students, to pupils in the University, through Social Agencies, by boy scouts, through the City Board of Health and the County Board of Health, by certain retail merchants who wrapped them in their parcels, through the Mothers Clubs, with bills and notices sent out by the Chamber of Commerce and the Business Men's Club and in many other ways.

"The Academy of Medicine Committee arranged for oral announcements before practically all luncheon clubs and civic organizations in the city and before fraternal organizations. Announcements were made in most of the Protestant churches and the Jewish synagogues on the Sunday preceding the exhibit; the Archbishop issued a proclamation urging Catholics to attend; the Mayor gave out a public endorsement of the exposition, three minute radio announcements were made every day for a week preceding the opening; a window display consisting of motion pictures and lantern slides was conducted in one of the downtown store windows; the public library staged a small window exhibit; posters were carried in the street cars, placed in factories and in downtown and suburban stores; organizations publishing bulletins and house organs carried articles; the newspapers gave the enterprise excellent publicity preceding and during the exhibit; news items were sent to all of the small papers in the surrounding districts. Mr. Tell Berna served as chairman of the publicity committee."

One Hundred Forty-Five Ways to Find News—The 145 ways are illustrated by stories selected from over 23,000 which appeared in the newspapers of the country during the 1925 Christmas Seal Sale. These are quoted and commented upon in *Publicity for Christmas Seals*, the 1926 campaign manual prepared by Dwight S. Anderson in collaboration with "Old Man Specific." The material is grouped under the following heads: Before the Campaign Opens, The Opening Itself, After the Opening, Progress of the Campaign, Interviews and Endorsements, Meetings, Speeches, Human Interest Stories, Feature Stories, Editorials, After Christmas, Contests, Stunts and Exhibits.

"Don't ask favors of an editor—give him news," the key-note of the manual, is credited to "Old Man Specific," the "invisible editor" in every newspaper office. *Publicity for Christmas Seals* is well worth the 25 cents for which a copy will be sent by the National Tuberculosis Association, 370 Seventh Avenue, New York, N. Y.

DISTRIBUTION

During April, 1926, more than 1,100 requests for social hygiene printed matter were received by the New York State Department of Health. The requests came from 326 communities in New York, 10 other states and 2 foreign countries.

* Please address questions, samples of printed matter, criticism of anything which appears herein, etc., to Evart G. Routzahn, 130 East 22d St., New York City.

"If Interested, Take One"—"A sign, worded like the title of this article, is to be found above a pamphlet rack in the waiting room of a well known physician in Steuben county. The rack is kept filled with popular public health literature obtained from the Department."—*Health News*, Albany, N. Y., June 14, 1926.

Live Comparisons—County fair audiences in the middle west have this fall been "shown the food value of butter in exhibits of laboratory experiments with live rats. These rats, supplied at cost to county agents by the National Dairy Council, are shown in pairs, *i.e.*, one fed a diet containing butter and the other the same diet excepting that butter is replaced by a common vegetable oil margarine now sold on the market. The cage in which they are shipped is used as the exhibit cage and suitable placards in plain terms, explaining the diet and its results are furnished to attach to the top of the cage or in a conspicuous space in the booth with each pair."—*Dairy Council News*, Chicago. Aug., 1926.

MOTION PICTURES

"Big Gains for Little Bodies" illustrates the work that is done at the nutrition camp of the Westchester County Tuberculosis Committee. The program is so similar to that employed by other undertakings of the same kind that the picture is becoming popular as a means of showing the public what nutrition work is and does. Produced by Carlyle Ellis, 71 West 23rd St., New York, N. Y.

"Empire Builders," "A Place in the Sun" and "The Work of an Infant Welfare Center" are pictures shown during National Baby Week in London.

"Pilgrim's Progress Through the College of Medicine." Prepared for the Exhibit of Medical Science, Cincinnati, Ohio, to "demonstrate various phases through which the student must pass before he is fitted to practice medicine."

Motion Picture Service of the Ohio Department of Health. A folder outlining conditions for securing free film service; list of pictures supplied; copy of the agreement form which must be filled out to secure the pictures.

"Toxin-antitoxin work in the city of Mount Vernon has received a marked impetus through the showing in a local vaudeville theater of moving picture films of diphtheria prevention work in the city schools including 'close-ups' of the children and physicians. . . . The film is 1,500 feet in length and includes views of vaccination clinics, the examination of minors for employment papers, and preschool and baby clinics in operation. The picture was shown twice a day for three consecutive days before audiences which aggregated 15,000 to 18,000 people. The making of the film was financed by the theater where the showing was made. A copy has been purchased by the Mount Vernon department of health which generously offers to lend it to other health departments for use in their communities." *Health News*, Albany, New York. July 26, 1926.

POPULAR HEALTH ARTICLES

Changing Johnny's Behavior. By Elizabeth Frazer. *Saturday Evening Post*, Aug. 14, 1926.

The Ethics of Animal Experimentation. By John Dewey. *Atlantic Monthly*, Sept., 1926. (Reprints available upon request to American Association for Medical Progress, 370 Seventh Ave., New York, N. Y.)

Glasses Are Important. Editorial. *Collier's*, July 31, 1926. Seems good material for a leaflet or small folder.

Fat and Fashion. By Woods Hutchinson. *Saturday Evening Post*, Aug. 21, 1926.

"The Daily Do's of Diet," by Lulu Hunt Peters. *Colliers*, New York. June 19, 1926.

"Food and Nutrition," by Durbin, Harrington and Drake. *The Crusader*, Milwaukee. April, 1926.

Common Sense in Mouth Hygiene, by William M. Gardner. *Hygeia*, Sept., 1926. Dentifrices and brushing, with the first practical guide I have seen to the amount of brushing needed. Some good material for a specialized leaflet or folder.

Death stalks at the side of Fashion, by Lin Bonner. *Liberty*, Sept. 25, 1926. "The truth about the boyish figure and the women who don't fit it."

Don't worry about yourself, by Dr. Menas S. Gregory, as told by John K. Winkler. *Collier's*, May 15, 1926. "A man isn't headed for destruction just because his brain plays queer pranks."

Making the Weight, by Grantland Rice. *Collier's*, Sept. 4, 1926. "Putting on and taking off pounds is an important part of an athlete's business. Here's how he does it."

The Romance of New Remedies, by Woods Hutchinson. *Saturday Evening Post*, Sept. 25, 1926.

When I Raise My Arm, by Henshaw Ward. *Harper's*, Aug., 1926. "The facts of muscular activity."

FOLKS WE SHOULD KNOW

Caroline Clark as field worker, including lecture work, for Ohio Social Hygiene Council, succeeds Permelia Shields who has gone to the Cleveland Social Hygiene Council.

Susa P. Moore, after 8 years of association with *Nation's Health*, has resigned to take up free lance writing upon medical and health topics.

In October, Evart G. Routzahn conducted clinics on printed matter and publicity material at the Georgia Welfare Conference and the New Jersey Tuberculosis Conference.

Thomas F. Kenney, director of health and school hygiene, Worcester, Mass. ("The Health Officer and the Health Education of His Community"); B. R. Rickards, New York State Department of Health ("New York State Department of Health Program for Popular Health Instruction"); and Dwight Anderson, National Tuberculosis Association, Frederick Edwards, Hampden County Tuberculosis and Public Health Association, Massachusetts, and I. C. Johansen, Franklin County public health nurse, Maine ("How to Make It an All Year Program in County Health Education in Rural Territory") were on the program of the New England Health Institute at Concord, N. H.

R. Heber Hixson, Oklahoma City; Charles E. Miner, St. Louis; Bernard C. Roloff, Chicago; and Mary Swain Routzahn, Chairman, are especially concerned with health education among the committee members of the Educational Publicity Division, National Conference of Social Work, for 1927.

Bleecker Marquette, Cincinnati, Vice-Chairman; Howard W. Green, Cleveland; Dr. H. E. Kleinschmidt, Columbus; Mary E. Murphy, Chicago; and Elizabeth Smellie, Ottawa, all doing health education work, are members of the committee in charge of the Health Division, National Conference of Social Work, meeting in Des Moines, Ia., in 1927.

Waste in Use of Automatic Stereopticons—Several dozen film slide and automatic stereopticon displays were seen at the Sesqui-Centennial Exposition—in Education and Social Economy, Pennsylvania State and U. S. Government Buildings. The whole lot was almost a total loss. Several in the Pennsylvania State building could be seen with fair satisfaction; two automatic machines in the U. S. Department of Agriculture exhibit were quite satisfactory. A number of the machines were mounted in good fashion to make them desirable elements of an exhibit. Several machines were not running—and without explanation or warning. One had the picture reduced so much that the legend slides could not be read. Some had too much border or advertising words at top and bottom of the picture. In some there was merely evidence of some pictures or words moving at frequent intervals with details determinable only by the closest possible scrutiny. In the majority of cases picture and words were too dim to hold attention long enough to understand what it was all about. Probable causes: not changing the light globes frequently enough, using the film strips too long, not good enough lantern slides, possibly poor manufacture of film strips, probably too small size picture for the purpose, possibly inadequacy of film slides.

American Eugenics Society and U. S. Women's Bureau were notable for their use of real ideas in working out their series of pictures.

The largest audiences for such displays were where a few seats had been provided.

The futility of using more than six or eight pictures in a series seemed more clear than ever in view of conditions to be met in expositions, fairs, etc.

SLOGANS

"Diphtheria the Next to Go!"—State Committee on Tuberculosis and Public Health, State Charities Aid Association, New York.

"Health is an asset; sickness a liability." Annual Report, Board of Health, Montclair, N. J., 1925.

"Your Teeth Are Never Clean—Until You Clean Between." Advertisement.

"Complete Eradication—Goal of Tuberculosis Workers." Ohio Public Health Association.

"Every Child in Good Health on His First Day of School." Indiana State Board of Health.

"No Child in Ohio Need Die of Diphtheria." Ohio Department of Health (adapted about 4 years ago).

"Tennessee Shall Enter the National Area of Birth Registration in 1926." Division of Vital Statistics, Tennessee Department of Public Health.

Slogan Duplication Discovered. *Printers Ink*, New York. July 22, 1926. List of 200 business slogans, supplementing 4,016 advertisements slogans listed in previous issues.

"Ask Dad": He Will Soon Know—The fathers' part in the child welfare movement is gaining attention in Great Britain. "On all sides this subject is proving popular, particularly so to the press. It is a subject also which has been successfully incorporated in several of the propaganda films which the Council has produced; it proves a popular subject too, for lectures and addresses to men's and also to general meetings."—*National Health*, London, June, 1926.

PRESS COPY

Editor's Clip Sheet from *Children*, 353 Fourth Ave., New York, is likely to supply material for bulletins on physical and mental welfare of children addressed to parents. State and national agencies will be interested in the make-up of this clip sheet. Free.

—*Courtesy Children, The Magazine for Parents*

The World's Children. U. S. Children's Bureau, Washington. A weekly sheet of notes on child welfare topics suitable for newspapers and popular monthly bulletins. Free.

TITLES

Counted Out By a Tooth: The tale of Ad Stone, champion boxer, who was knocked out by Focal Infection. *Popular Health Mag.*, Minneapolis. Aug., 1926.

Diphtheria—Negligence. *Pub. Health News*, Trenton. July-Aug., 1926.

Making Eggs Behave. *Cincinnati San. Bull.*, July 15, 1926. Official regulations covering broken, canned and frozen eggs.

Swindling the Stylish Stout. *Hygeia*, Aug., 1926. Uncle Sam calls a halt on fat-cure fakery.

Traffic Accidents Skyrocket. *Toledo City Journal*, July 31, 1926.

Why City Children Are Now Healthier Than Their Country Cousins: Tables Turned by Neglect of Health Education. *Northwest. Health J.*, St. Paul, Aug., 1926.

CONTESTS

Competitions announced by the National Baby Week Council include essays on The Toddler's Day, stories and poster drawing for boys and girls; syllabus and synopsis of lessons for the teaching of mothercraft to school girls, for women teachers; syllabus and synopsis on the teaching of hygiene in the household, for men teachers. For details see *National Health*, London. Aug., 1926.

How to Conduct Milk and Cream Contests. By U. S. Department of Agriculture. Five cents, after the free supply is exhausted.

The Imperial Baby Week Challenge Shield Competition is represented in the Dominion of Canada by Dr. Helen MacMurchy, Public Health Department, Ottawa, and the various provincial health officers.

Mothercraft Competitions, held for 14 years, "are open to infant welfare centers throughout the United Kingdom, which are affiliated to the Association of Infant Welfare and Maternity Centers." Among the 11 classes are 2 in which a few simple questions are answered in writing. The questions answered in the 1926 class on "Fathercraft" follow: What can a husband do to safeguard the health of the coming child and also of his wife at this time? What are the advantages and disadvantages of breast-feeding? What are the advantages of a baby not sleeping with its parents and of a young child to have a bed to itself? What can be done to secure enough sleep for children? What can a father do to prevent spread of illness by dust and flies? In what ways can men as citizens help to secure a clean and wholesome food supply for children? What is the importance of attending to bad teeth and trying to prevent their decay? The winning answers are given in full in *National Health*, London, W. C. 1. Aug., 1926. Ninepence.

Prizes will be given for the best Christmas seal publicity in the 1926 campaign. Information from any state tuberculosis association.

School Contest Winner Gains 17 Healthy Pounds. *Red Cross Courier*, Washington, D. C., Aug. 16, 1926.

Three health contests were held in the Public Health Building at the Minnesota State Fair this year: mouth hygiene, posture, and general health (including the first two).

DATES AHEAD

You will find here from month to month dates to use or to avoid in planning your own program. Your organization may arrange to participate in some of the events.

Among other dates that may sometimes be utilized are: Anniversaries—your city; your state; your agency; your oldest social agency; your oldest social workers; your oldest volunteers, including board members; your leading citizens.

Holidays, anniversaries, special weeks, campaigns, and conventions planned for 1926–1927 which are of interest to social, health, civic, educational and religious organizations are listed in "Dates Ahead," a mimeographed bulletin of 10 pages. Numerous addresses for securing information are included. Issued by the Committee on Publicity Methods in Social Work, 130 East 22d Street, New York. 20 cents a copy.

NOVEMBER—1926

Intensive Educational Campaign against *Smallpox*—Proposed by Conference of State and Provincial Health Authorities—Address: Any public health agency.

Junior Red Cross "Fitness for Service" activity: Avoid taking colds; responsibility for not spreading colds.

2—Election Day
7—Armistice Sunday—Address: Federal Council of Churches, 105 East 22d St., New York, N. Y.
7—Red Cross Sunday—Address: American Red Cross, Washington, D. C.
7–14—Father and Son Week—Address: National Council of Y.M.C.A., 347 Madison Ave., New York, N. Y.
7–13—Children's Book Week—Address: National Association of Book Publishers, 25 West 33d St., New York, N. Y.
11—Armistice Day
11–25—Red Cross Roll Call—American Red Cross, Washington, D. C.
25—Thanksgiving Day
26—Opening of Christmas Seal Sale
28—Tuberculosis Sunday (or, December 5)—Address: Any tuberculosis association

DECEMBER—1926

Christmas Seal Sale continues
Midwinter school holidays
Intensive Educational Campaign Against *Smallpox*—Proposed by Conference of State and Provincial Health Authorities—Address: Any public health agency.

Junior Red Cross "Fitness for Service" activity: Reviewing fundamental health laws; personal responsibility for health in the home.

5—Golden Rule Sunday—Address: Near East Relief, 151 Fifth Ave., New York, N. Y.
5—Universal Bible Sunday—Address: American Bible Society, Bible House, New York, N. Y.
5—Tuberculosis Sunday (or, November 28)
25—Christmas Day

AWARD OF MERIT

For the inclusion of a table of contents in an annual report:

The Board of Health, Territory of Hawaii.
The Board of Health, Town of Montclair, N. J.
The Board of Health, City of East Orange, N. J.

MONEY RAISING

SENDING GOOD MONEY AFTER BETTER, by Edwin C. Jones. *Womans Press*, 600 Lexington Ave., New York. Effectiveness of direct mail appeals for funds—when well done.

CHARITABLE AND CHARACTER BUILDING BRIDGE. 8% CONVERTIBLE PREFERRED STOCK. SERIES OF 1926. NORFOLK COMMUNITY FUND. Free. A 4-page circular making an appeal for funds in the characteristic form and phrases of an offering of assured dividend-paying stock.

TECHNICAL

"The A B C of Photo-Engraving." American Photo-Engravers' Association, 141 East 25th St., New York. Free. 16-page booklet illustrating and describing the making of line plates and half-tones.

A novelty folder advertising the *American Review*, 509 North East St., Bloomington, Ill., takes the place of a 10 or 12-page booklet. Free. Ask for, "Some of the Libraries Using It—What Some of Our Readers Say." Be careful not to overload the inside pages.

"Pity the *Poor* Blotter—What Chance Has It?" by Norman Kirchbaum. *Mailbag*, Caxton Bldg., Cleveland. 10:389–392. July, 1926. 10 cents. Tells how to produce a blotter that will be kept and used.

A simple method of personalizing a circular or a report by attaching a form letter to the cover page—ask *Children*, 353 Fourth Ave.,

New York, for a copy of folder entitled, "The Two Essentials for a Publishing Success."

"Two Pages Facing—Or the Art of Layout in One Easy Lesson," by Donald Rankin. *Mailbag*, Caxton Bldg., Cleveland. 10:396–401. July, 1926. 10 cents. How to lay out the pages of your booklet.

Warren's Standard Sales Units. S. D. Warren Co., 101 Milk St., Boston. Free. 20 pages, 8½ by 11 inches. Includes dummies of folders, letters, etc. (with samples of envelopes for same), to cut from paper without waste.

Capital Letters Not Safe for Danger Signs—The very general use of all "caps" for making danger signs calls for discussion. The evidence is against the readability of capital letters. The more they are used the less legible become the words. Another factor lessening quick readability of signs is the use of tall and narrow or "condensed" lettering, and of fancy or ornamental or unusual forms of letters. Traffic and danger signs of all types should be carefully worked out in the details that affect immediate grasping of the message.

NEWSPAPERS

A railroad wreck, presumably due to the affected heart of an engineer, was the text of a letter to the editor, July 3, from the New York Tuberculosis and Health Association.

According to *Editor and Publisher* (June 5, 1926), the following syndicated health columns or health departments (daily or weekly) and series of articles on health matters are being offered to newspapers: Dr. James W. Barton, Bell Syndicate; Dr. William Brady, National Newspaper Service; Senator Royal S. Copeland, Newspaper Feature Service; Dr. A. F. Currier, Editors' Feature Service; Dr. W. A. Evans, Chicago Tribune Newspapers' Syndicate; Dr. Morris Fishbein, Current News Features; Dr. Woods Hutchinson, Houghton Mifflin Syndicate Bureau; Dr. Lulu Hunt Peters, George Matthew Adams Service; Dr. Chas. A. L. Reed, King Features Syndicate; Paul J. Veatch, Graphic Syndicate; various writers, International Feature Service.

An attempt was made in January to launch a health syndicate, but the attempt failed because of the fact that the field appeared to be already filled by commercial health syndicates. It is proposed to revive this idea shortly. —*Report* of Canadian Social Hygiene Council.

Morning daily newspapers in the United States June 15, 1926, numbered 430, a gain of 3 in 6 months. Evening dailies dropped from 1,581 to 1,560. Sunday papers numbered 551, an increase of 3. Morning circulations totaled 12,440,387; evening, 21,761,975; Sunday, 24,455,822—all 3 registering increases in the 6 months' period.

LAW AND LEGISLATION

JAMES A. TOBEY, LL.B.

Libel and Public Health—Libel is a subject of much practical importance and interest to sanitarians. While libel suits are not particularly numerous in public health work, there is always the possibility that some aggrieved or malicious person may, justifiably or not, sue an individual or a publication for this alleged wrong. The possibility of a libel suit must, in fact, always be faced by health officials who are zealous in securing publicity, by the newspapers which print stories about public health events, by health magazines, and by voluntary organizations which issue pamphlet and other written material. This possibility should not be considered as a valid argument against the proper use of health publicity, which is conceded to be an important factor in modern health work. Sanitarians should, however, be familiar with the legal principles of the civil wrong known as libel, in order that they may prevent lawsuits for this cause, or if occasionally not preventable, that they may defend such suits successfully. This month's section will, therefore, be devoted largely to a discussion of the legal liability for libel, as involved in public health activities.

Libel is defined legally as a malicious publication, expressed either in printing or writing, or by signs and pictures, tending either to blacken the memory of one dead, or the reputation of one who is alive, and expose him to public hatred, contempt, or ridicule. Slander is similar, except that it is spoken, instead of written. The same general rules apply to

slander as to libel, and the latter has, in fact, been called "written slander." Sometimes state laws define libel and slander, in which case these statutory definitions govern. Defamatory words may be either actionable *per se* or those not injurious on their face, but actionable by innuendo. Thus, to charge a person falsely with having a venereal disease is actionable *per se*, but to allege that a physician is lacking in skill in the conduct of a particular case is not actionable *per se*, though special damage may be shown. In the first class of cases, general damages, those which the law presumes must actually and necessarily result from the defamation, may be recovered. The line between the two kinds of libel is, however, difficult to draw. It has been held libellous *per se* to accuse a person of selling impure food in violation of law, but an assertion of the violation of health laws must fairly and reasonably charge such an offense (Hartmann vs. Sun Printing Co., 74 App. Div. 282, 77 N. Y. S. 538).

The truth is a defense to matter alleged to be libel, and defamatory words are actionable only if false. What is false and what is true may, nevertheless, give rise to some nice distinctions; besides, state laws or constitutions sometimes limit the rule in certain cases. The truth is likewise often difficult to prove. If a newspaper prints a story about an epidemic and states that a certain milker on a dairy farm was the carrier of the disease and the milker sues for libel, the newspaper is confronted with the problem of proving the truth of its statement. Such an instance actually happened recently in South Carolina and the publisher, being unable to justify his story, had to pay a judgment of $1,600, although the milker sued for $3,000.

Certain kinds of communications are known as "privileged" and will not support a libel suit. Thus, where a physician sends a patient to a colleague with a note that the individual has syphilis, there is no libel (Thornburg vs. Long, 178 N. C. 589, 101 S. E. 99). So, too, where a school medical director and dean of women in a private institution sends a communication to the parents of a girl to the effect that she has venereal disease, this has been held not libellous, but conditionally privileged (Kenney vs. Gurley, 208 Ala. 623, 95 So. 34, 26 A. L. R. 813). All communications between a physician and his patient are privileged.

Absolute privilege attaches to matters of actual public business. Thus, if a health officer reports a condition to a board of health, there can be no libel, unless the statement is deliberately and maliciously false. As a general proposition all communications made by a public officer in the discharge of his official duties are conditionally privileged when they are not absolutely privileged. This does not mean, however, that a health official can revile an individual without cause under pretense of protecting the public health. Nor should a health officer give statements concerning individuals to the press unless he is positive of the truth of such allegations and, furthermore, that he can prove them. An honest mistake will usually be condoned, but a careless, negligent, or malicious statement which causes damage to a person may result in the payment of a judgment by the health officer as an individual. The municipality, incidentally, is never liable for the personal wrongs of its public officers.

Newspapers are given considerable latitude in the publication of matters of general interest, but they must present full and impartial accounts. The same general rule applies to magazine articles. The published material need not be confined to a presentation of facts, but may include fair criticism and comment. An attack on an individual, on his conduct and motives, is not fair comment and can only be justified if true. Where an article purports to state positive facts and such facts are assertions of disgraceful or fraudulent actions by a person, there is no defense but truth and that is often difficult to show. This principle was well brought out in the recent case of Sherman vs. International Publications, 212 N. Y. S. 478, 214 App. Div. 437, in which a manufacturer of vaccines sued a Hearst publication for an article on Doctors and Drugmongers. This case brought out the well-established principle that the work of a person may be the subject of fair comment and opinion, but that his personal motive and conduct cannot be attacked, unless the writer and publisher are prepared to prove the truth of such assertions of fact.

A word as to book reviews—An author who places a work before the public invites criticism upon it. No matter how hostile or derogatory the criticism may be, there is no libel, provided the critic does not make a vicious attack upon the personal character of the author, or deliberately misstate essential facts.

The practical effect of a libel suit on public health work is well illustrated by a case related in *Editor & Publisher* for June 5, 1926 (page 10). A threatened epidemic in the spring of

1924 was reported in the *Columbia* (S. C.) *Record* and the action of the local health officer in closing a certain dairy was narrated. It was stated that a milker had been discovered responsible for spreading the disease. As a matter of fact it turned out that the milker was found not to be a carrier and there was some uncertainty as to the source of infection. The dairyman and the milker each sued the newspaper for libel, though neither had been mentioned by name. Each got a judgment in the lower court, the milker for $600 and the dairyman for $4,000. The Supreme Court upheld this verdict in the case of the milker, but remanded the other case for a new trial on the ground that certain questions of fact should have gone to the jury.

"As a consequence of this damage suit," writes the editor, "it is impossible to get either the morning or afternoon newspaper in Columbia to publish any information or reports from the city health department with regard to milk inspections, and the people have no means of getting any knowledge on the subject."

In this brief article it is, of course, possible only to outline in the most meagre way some of the essential legal principles concerned in libel. Odgers on libel and slander, and Newell on the same subject are cited by the courts as authoritative textbooks, while the articles on this topic in the legal encyclopedias, *Ruling Case Law*, and *Corpus Juris* have much valuable material. Certain phases of general liability in public health are treated in *Public Health Law*. The interested reader is referred to these books, and to the report of the Sherman case in the *New York Law Journal* for February 8, 1926, for further study of this important subject. The associate editor would be interested to hear of any experiences which sanitarians have had with libel suits.

Federal Tuberculosis Activities—Under the title "What the Government is Doing for the Tuberculous," Miss Lucy Minnigerode contributes an article to the *American Journal of Nursing* for September, 1926. The tuberculosis work of six different federal bureaus is briefly described. The bureaus included are: Army Medical Department, Public Health Service, U. S. Veterans' Bureau, "Indian Bureau" (Office of Indian Affairs), Employees' Compensation Commission, and Bureau of Animal Industry. To these should be added the Bureau of Mines, the Bureau of Labor Statistics, the Bureau of Chemistry, and the Post Office Department, the functions of which with respect to tuberculosis will be found discussed in the *National Government and Public Health*, on page 366. Thus, there are at least ten different bureaus in half a dozen departments which are concerned directly or indirectly with some aspect of tuberculosis work. In June, 1925, the National Tuberculosis Association passed a resolution favoring the correlation of federal health work. And well it might.

Texas Items—A copy of the *Texas State Journal of Medicine* for July, 1926, which the associate editor obtained in order to peruse an article therein by A. F. Allen on "Some of the Results Attained Through Federal Supervision of Water Supplies Used in Interstate Traffic," contained so many items of interest that they deserve special mention. This progressive journal is devoted "to the interests of the medical profession and public health of Texas," which is a logical combination. The editorial material at the beginning has some pointed comment on "The Vote of the Doctor," in which the attitudes of the various candidates for state office toward medical and public health matters are discussed. Further along, it is noted that the Parker bill (H.R. 10125) for federal health coördination has been approved by the House of Delegates of the Texas State Medical Association. Mr. Allen's paper on page 189 is a thorough and able presentation of federal supervision over interstate water supplies. In the news notes is an item that the Fifth Court of Civil Appeals recently reversed the action of a lower court in granting an injunction against the continuance of the health department in the public schools of Dallas.

Miscellaneous Items—Dr. Benjamin W. Black has been appointed medical director of the United States Veterans' Bureau, succeeding Dr. E. O. Crossman.

Protective Health Measures on the United States-Mexico Border are outlined by Surgeon J. W. Tappan of the U. S. Public Health Service in an article in the *Journal of the American Medical Association* for September 25, 1926.

The Institute for Government Research of Washington, D. C., is about to undertake a survey of the Indian situation in this country, with special reference to government care of the Indians. Presumably medical and health questions will be included.

The parliamentary and legal aspects of sani-

tary progress in England from 1876 to 1926 are outlined by Alexander MacMorran in the *Journal of the Royal Sanitary Institute*, July, 1926.

Food definitions pertaining to fruits have been revised by the Secretary of Agriculture. The Secretary promulgated regulations on August 11, by which canned foods are now on the list of commodities which may be stored under the United States Warehouse Act.

State regulation of public baths, swimming pools, etc., is discussed in the *Journal of the American Association for Promoting Hygiene and Public Baths*, Volume 8, 1926.

A humorous account of how the sanitary oyster is made occurs in the "Sun Dial" as the literary effusion of H. I. Phillips, jester on the *New York Sun*. Dr. Phillips' next to last paragraph, states that "As each oyster is passed, a metal disk bearing the stamp of the State Department of Health, the Federal Health Board, the Bureau of Fisheries, the Department of Interior, the State Building Department, the Board of Aldermen, the House of Representatives, the League of Nations, the Benevolent Order of Elks, and the Cigar Makers Union is affixed." There is almost as much fact as fancy in this vagary of the eminent columnist.

CONVENTIONS

November 8–13, Ohio Health Commissioners, Department of Health State of Ohio, and Ohio Society of Sanitarians, Columbus, O.

November 10–14, American Country Life Association, Washington, D. C.

November 15–18, Southern Medical Association, Atlanta, Ga.

November 18–20, Annual Regional Conference on Social Hygiene, Atlanta, Ga.

December 1–2, National Committee for the Prevention of Blindness, New York City.

December 6–9, American Society of Mechanical Engineers, New York, N. Y.

December 27–30, American Association for Labor Legislation, St. Louis, Mo.

December 27–January 1, American Association for the Advancement of Science, Philadelphia, Pa.

December 28–31, National Community Center Association, St. Louis, Mo.

Your Child Need Never Have Diphtheria

Modern preventive and curative measures provide the only adequate safeguard against this treacherous disease. Is your family protected?

THE following questions and answers will briefly outline the role that is played by each antidiphtheritic measure:

Q. *How may one determine whether or not a child is susceptible to diphtheria?*
Ans. Application of the simple Schick test informs the doctor whether or not the child will take the disease if exposed.

Q. *If the child is not immune, how can the disease be prevented?*
Ans. Treatment with Toxin-Antitoxin Mixture. This consists of three injections at weekly intervals and offers no inconvenience to the child. The immunity which develops during a few months following Toxin-Antitoxin treatment remains for years.

Q. *A child who has never been treated with Toxin-Antitoxin Mixture, and who may not be immune, becomes exposed to the disease What course should be followed?*
Ans. Prompt treatment with a prophylactic dose of Diphtheria Antitoxin. This gives immediate protection against diphtheria, but the protection lasts for a few weeks only. Toxin-Antitoxin Mixture should never be used in these circumstances.

Q. *What is necessary to save the life of a child who has diphtheria?*
Ans. Early use of diphtheria antitoxin. When diphtheria is prevalent all cases of severe sore throat should receive the attention of the family doctor. He has means by which he can definitely recognize diphtheria, in which case he immediately institutes antitoxin treatment, practically assuring the recovery of the patient.

Your doctor is familiar with the standard represented by:
Diphtheria Antitoxin (refined and concentrated) P. D. & Co.
Diphtheria Toxin for the Schick Test, P. D. & Co.
Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic) P. D. & Co.

PARKE, DAVIS & COMPANY DETROIT
U. S. License No. 1 for Manufacture of Biological Products

Epidemics Spread Through Public Eating and Drinking Places . . . . . .

¶ Winter epidemics such as colds, influenza, pneumonia, etc., may be spread through the eating and drinking utensils in restaurants, soda fountains and soft drink stands.

¶ An unclean glass, fork or spoon passed from mouth to mouth is potentially one of the most dangerous spreaders of disease.

¶ The germs that cause the winter epidemics may be found on utensils in eating and drinking places. Certain investigations at the time of the influenza epidemic, 1918–19, pointed to common eating utensils as the chief source of infection.

¶ Certainly if an infected person drinks out of a glass and ten minutes later it is, without sterilization, put to the mouth of another, it may constitute a most dangerous means of transmitting disease.

¶ Some attention has been given this matter, but the enforcement of the possible methods of protection has been very lax. Conditions are little better than they were, and fall short of the care and sanitation observed in other industries handling food.

¶ In this connection the use of sodium hypochlorite, B–K, as a sterilizing rinse, provides the safety which is necessary. After the regular washing, the utensils are simply immersed in a B–K solution and the job is thoroughly done. The utensils are then ready for use—the disease germs are killed and nothing is left on the utensils which is in any way objectionable.

¶ The City of Chicago has recommended the use of sodium hypochlorite—others are following its example. It affords the greatest protection.

¶ We can provide you with data on this subject and assist you to combat the usual epidemics which occur during the cold weather. Now is the time to act.

Write to us direct for data and methods of applying it in the various places under your jurisdiction.

GENERAL LABORATORIES

172 South Dickinson Street

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